Environmental Consultants
434 7th Street, Suite B
Eureka, CA 95501
707.476.1590
FAX 707 476.1589
www.scsengineers.com

SCS ENGINEERS

Workplan:
Additional Subsurface Investigation

Schmidbauer Lumber, Inc.
1099 Waterfront Drive
Eureka, California

File Number 01203316.00

Prepared by:

SCS Engineers
434 7th Street, Suite B
Eureka, California 95501

To:

Kasey Ashley
North Coast Regional Water Quality Control Board
5550 Skylane Boulevard, Suite A
Santa Rosa, California 95403

28 July 2005

LIMITATIONS/DISCLAIMER

This workplan has been prepared for Schmidbauer Lumber, Inc., with specific application to a workplan for the purpose of subsurface exploration with the express purpose of analysis of area(s) that require additional investigation for plume definition as required by the North Coast Regional Water Quality Control Board in accordance with Cleanup and Abatement Order No. R1-2005-0040 for the Schmidbauer Lumber property located at 1099 Waterfront Drive, Eureka, California (the "Site"). This workplan has been prepared in accordance with the care and skill generally exercised by reputable professionals, under similar circumstances, in this or similar localities. The conclusions and proposed work contained herein are based on analytical data, and points of exploration. The nature and extent of subsurface conditions may and likely do vary between borings and/or points of exploration. No other warranty, either expressed or implied, is made as to the professional conclusions presented herein.

Access to the Property is limited by buildings, automotive traffic, underground and above-ground utilities, and other miscellaneous site features. Therefore, the field exploration and points of subsurface observation proposed are somewhat restricted.

Changes in site use and conditions may occur due to man-made changes or variations in rainfall, temperature, water usage, or other factors. Additional information which was not available to the consultant at the time of this assessment or changes which may occur on the site or in the surrounding area may result in modification to the site that would impact the summary presented herein. This workplan is not a legal opinion.

We look forward to continuing to work with you on this project and trust this report provides the information you require at this time. If you have any questions or need additional information, please call SCS at 707.476.1590.

KLC

Kevin L. Coker
Registered Environmental Assessor #7887

7-29-05

Date
Current Expiration Date: 30 June 2006

Karin W. Fresnel
California Certified Engineering Geologist #2264

PROFESSIONAL GEOLOGIST
KARIN W. FRESNEL
No. 2264
CERTIFIED
ENGINEERING
GEOLOGIST
STATE OF CALIFORNIA

28 July 2005

Date
Current Expiration Date: 31 August 2007

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Introduction

SCS Engineers is pleased to present this workplan for additional subsurface investigation for Schmidbauer Lumber, Incorporated located at 1099 Waterfront Drive, Eureka, California (the Site). The workplan has been prepared in accordance with the North Coast Regional Water Quality Control Board (NCRWQCB) Cleanup and Abatement Order R1-2005-0040 (Order). The Site is located in sections 21 and 28, T5N, R1W of the Eureka 7.5 minute quadrangle. The Site location is illustrated on the Site Location Map (Figure 1). General Site features are illustrated on Figure 2.

1.0 SITE BACKGROUND

1.1 SITE HISTORY AND PREVIOUS INVESTIGATIONS

1.1.1 Background

The following is a brief overview of Site history and information relevant to releases at the Site. The Site location is historic filled tidelands (tidal marsh and associated channels). Fill placed at the Site dominantly appears to consist of hydraulic dredge spoils placed prior to Site development in the late 1940's. The Site was initially developed by Hammond Lumber Company (Hammond) in about 1948. Hammond occupied the site as a lumber mill until 1960, when Norris Redwood (Norris) took over site operations. Norris Redwood also operated the site as a lumber mill until 1967. In 1968, Georgia-Pacific Corporation (GPC) began operating a lumber mill at this location, continuing operations at the site until 1972 when the Site was acquired by Schmidbauer Lumber Company (Schmidbauer). Hammond, Norris, and GPC reportedly processed only redwood and did not treat wood on this Site.

Schmidbauer began operations at the Site in 1972. Schmidbauer processes softwoods (dominantly Douglas fir) and began treating finished lumber with Noxtane, an anti-staining fungicide containing pentachlorophenol (PCP) after acquiring the Site in 1972. Treatment operations at the Site were conducted in the main mill building (Mill #1). Schmidbauer continued wood treatment operation at the Site until 1983 when the use of fungicides was discontinued. Wood treatment operations at the Site were confined to the interior of this concrete-floored building. It is SCS' understanding that the treatment area is much the same today as when wood treatment was conducted at the Site.

Indications are that Noxtane diluted with water (1 to 100) sporadically flowed from the wood treatment area as a result of equipment malfunction into an exterior covered area to the east. Schmidbauer representatives have reported that the releases occurred between 1980 and 1983. According to Schmidbauer representatives, wood treatment operations were performed using spray nozzles, a collection tank beneath the applicators and associated product return lines. Sporadic releases occurred when the return system became plugged, resulting in overflow from the collection tanks. Releases also occurred when the lumber conveyance system jammed in the planer, resulting in saturation of the wood being treated and associated runoff from the treated lumber. The number and volume of releases is unknown.

1.1.2 Previous Environmental Investigations

A series of investigations beginning in 1997 have been conducted at the Site in an effort to determine the lateral and vertical extent of soil and groundwater impact by chlorophenols at the Site. Several subsurface investigative iterations including soil sampling and installation of temporary wellpoints, shallow and deep well installations have been conducted at the Site on an ongoing basis since inception of the investigation program in 1997 (Tables 1-20, Figures 3a-5c). A complete history of investigations to date are presented in volumes 1 and 2 of the *Results of Monitoring Well Installation and Drilling of additional Borings (Revised) and Results of Additional Deep Monitoring Well Installation* prepared by SCS for Department of Toxic Substances Control (DTSC) and revised 29 October 2004 (SCS, 2004).

1.2 SITE CONCEPTUAL MODEL

The site and site vicinity have been characterized as a tidal marshland prior to development of the area, which began in 1876. Reviews of historic maps of the area dating back to 1858 identify the site as tidal marsh that was later filled (Figures 6a-6e and 7). Clark Slough passes just east of the site flowing north-northwesterly to Humboldt Bay. The 1942 USGS Eureka 15-minute Quadrangle map illustrates marshlands and a small water body (marsh?) in the approximate location of the present day Site. The Site is illustrated (Figure 7) in the Map of City of Eureka, California *Map Showing Original Water Courses and Fill Areas (1854-1955)*. Tidal marshlands are typically dominated by silt and clay (Bay Mud) with high organic content (marsh grasses and associated root systems, decaying vegetation, peat) interlayered with coarse-grained materials (e.g. sand, gravel) from meandering stream distributaries and tidal channels. Bay Mud layers are typically discontinuous or lenticular (Goldman, 1969). The marshland areas of Eureka reportedly began receiving fill as early as 1854. The Site apparently began receiving fill in the early to middle 1940's prior to development in the late 1940's. Fill present at the Site appears to be composed of sand with minor shells and fines. The fill present at the Site appears consistent with hydraulic fills likely representing dredge spoils.

Sand has been encountered from the near surface (beneath improvements such as asphalt and base rock) to the maximum depth explored thus far on the site of 50 feet. Thin layers (0.5 to 2 feet thick) of Bay Mud, consisting of mixtures of very fine grained sand, silt, clay, and peat along with grass, and other organic matter, were identified in some borings at shallow depths, generally less than or about 8 feet bgs (Figures 8A-8E, Table 21). This material likely represents the historic tidal marsh horizon prior to fill being placed. Discontinuous layers of clay, peat, and very fine grained sand and silt have been identified in some, but not all borings. A careful review of bore logs was conducted in an effort to define the presence of the tidal marsh horizon. A summary of the detections of materials identified as Bay Mud, peat or where plant materials were encountered in various boreholes drilled at the Site is presented in Table 21. This information was incorporated in geologic cross-sections of the Site at the request of the regulatory agencies.

The lithology encountered in borings generally supports the history of the site as being part of an evolving beach/sand dune and coastal marshland, or minor estuarine environment. It also supports the site being on the inland side of sand dunes, as in excess of 100 feet of sand has been measured in the vicinity of Humboldt Bay (Evenson, 1959; Johnson 1978).

Based on the lithology observed in borings drilled at the Site to date, it appears that much of the Site was in a coastal beach/dune sand depositional environment for a longer period of time than it was in a tidal marshland/estuarine environment. Groundwater was encountered in borings drilled in 1997 at a depth of approximately 3 to 5 feet below existing ground surface (bgs). Additionally, during the September 2003 and January 2004 drilling programs, groundwater was initially encountered in each of the borings drilled at depths ranging from approximately 1.5 to 6 feet bgs. Fluctuations in the depth to the shallow groundwater table of approximately 2 feet or less have been observed from summer to winter since installation of the monitor wells (SCS, 2004d). Groundwater levels are highest in the first quarter of the year and lowest in the third quarter of the year, generally corresponding to season (SCS, 2004d).

Groundwater levels in deep wells (MW-2, MW-8D, and MW-9D) have been consistently 3 to 4 feet lower than the groundwater levels in the shallow wells (SCS, 2005d). The lithology encountered in the three deeper wells is similar (SCS, 2004d). No significant clay layer or aquitard was observed which would warrant the installation of conductor casing in the deep wells.

Previous investigations indicate that the site is dominantly underlain by hydraulic fill (sands) placed over preexisting tidal marsh deposits. The marsh deposits are represented by silt and clay with organic matter variously described as peat or grass with abundant roots. This likely represents the surface of the old tidal marsh horizon. These marsh deposits are generally thin varying from one-half to two feet in thickness (where present) and are discontinuous across the site based on the boring logs (SCS, 2004d) and cross-sections (Figures 8a-8e). Based on this information, it appears that the silt/clay layer may be described as a leaky aquitard at best. The use of conductor casing with these conditions would not prevent the intermixing of shallow and deeper groundwater. Presence of discontinuous lenses and layers of silt and clay indicates that groundwater flow is likely impeded by these lenses. This would create the impression of multiple distinct aquifers when in fact groundwater flow is impeded within the transport zone of the groundwater table. This may explain the seeming appearance of two water-bearing zones at the Site and the distinct difference in groundwater elevations between the shallow and deeper monitor wells.

The monitor wells have been gauged and sampled on a periodic basis since installation. SCS conducted a review of groundwater conditions and flow regimes (SCS, 2005b) in accordance with the Order (NCRWQCB, 2005). Prior to the review of groundwater flow regimes with specific well groups, the generalized groundwater flow regime at the Site appeared to be southerly based on data from shallow wells and southeasterly in the deeper wells (Charts 1 and 2). Review of individual well groupings by SCS indicates that a shallow groundwater mound is present in the vicinity of monitor wells MW-1, MW-6, and MW-7 located between the mill structures. The presence of this mound adversely influences resolution of site-wide or regional

groundwater flow. Groundwater flow from this well group indicates a westerly groundwater flow direction (Chart 3). A well group consisting of wells MW-3, MW3R, MW-4, and MW-5, appears more representative of site-wide or regional groundwater flow conditions. Groundwater flow from this well group indicates a dominantly south-southwesterly flow regime (Chart 4).

Currently, a chlorophenol groundwater plume is not present in the existing monitor well network.

2.0 PROPOSED SCOPE OF INVESTIGATION

2.1 PROPOSED SOIL AND GROUNDWATER INVESTIGATION

2.2.1 Proposed Monitor Well Installation and Soil Sampling

A review of pre-existing cumulative data and the groundwater flow regime interpretations discussed above indicate that additional investigation is warranted to the west and south-southwest. Investigation in this direction will entail installation of additional monitor wells including wells within the Mill #1 building. SCS proposes four additional borings for conversion into monitor wells at the approximate locations illustrated on Figure 2. The borings for the monitor wells will be drilled to further evaluate the lateral extent of impacted soil and shallow groundwater at the Site. The wellbores will be drilled using either eight-inch or nine-inch diameter hollow stem augers and will be converted into monitor wells using 2-inch diameter Schedule 40 flush threaded PVC material. The screened interval in the monitor wells will consist of 0.010-inch machine slotted screen and will extend from approximately 5 to 15 feet bgs, depending on field conditions encountered. The anticipated depth of each boring is approximately 15 feet, with 10 feet of screen in each well. A Number 2/12 sand or its equivalent will be used to create a filter pack around the screen. The filter pack will be brought to approximately one foot above the top of the screen. An approximately one-foot hydrated bentonite seal will be placed on top of the sand filter pack, and the wells will be completed to the surface with a cement seal. Typical well construction details are presented on Figure 10.

Access inside of the mill building may require the use of a limited access direct-push rig for installation of proposed wells. The wellbores will be drilled using either 2.5-inch diameter direct-push sampler and will be converted into monitor wells using 0.75-inch diameter Schedule 40 flush threaded PVC material. The screened interval in the monitor wells will consist of 0.010-inch machine slotted pre-packed screen and will extend from approximately 10 to 15 feet bgs, depending on field conditions encountered. The anticipated depth of each boring is approximately 15 feet, with 5 feet of pre-packed screen in each well. An approximately one to two-foot hydrated bentonite seal will be placed on top of the sand filter pack, and the wells will be completed to the surface with a cement seal.

The well casing in each monitor well will extend to within six inches bgs and will be fitted with a waterproof locking cap. The wells will be protected by traffic rated water-tight circular vaults set in traffic rated concrete and finished ay existing grade within the mill building and approximately ½-inch above grade for exterior wells.

Wellbores will be continuously cored and examined for lithology from each of the borings to an anticipated maximum depth of approximately 15 feet bgs. Soil samples for laboratory analysis will be collected at five-foot intervals (changes of auger flights), changes in lithology and obvious zones of contamination. Additionally one sample will be collected for laboratory analysis at approximately one to two feet bgs beneath the construction subgrade fills. SCS anticipates collecting at least four soil samples from each of the wellbores for laboratory analysis based on the results of past drilling programs at the Site. Soil samples will be collected in either ¾-inch or two-inch stainless steel or brass sleeves, dependent upon drilling method, capped with Teflon® sheeting and plastic end caps. Soil samples will be stored under refrigerated conditions. Samples will be transported under chain of custody documentation to Analytical Sciences, Inc, a Department of Health Services certified laboratory, in Petaluma, California for analysis. All samples will be collected following SCS Standard Soil and Water Sampling Procedures and QA/QC Protocol (Appendix A). Chain-of-Custody documentation will be maintained at all times.

Downhole drilling equipment will be pressure washed between borings to prevent cross contamination between borings. Sampling equipment will also be cleaned between sampling intervals and borings to prevent cross contamination between samples and borings. Drill cuttings will be placed in labeled steel 55-gallon UN/DOT-approved 17E/H drums, pending characterization and disposal. Water generated by decontamination, well development, purging, and sampling will be stored at the Site in labeled steel 55-gallon UN/DOT-approved 17E/H drums, pending characterization and disposal. Options for the disposal of the soil and groundwater will be evaluated once the soil and groundwater analytical results have been reported. Evaluation of disposal options may require additional sampling of containerized soil and groundwater prior to acceptance for disposal at the receiving facility.

2.2.2 Well Survey

The tops of the new monitor well casings will be surveyed under the supervision of a California licensed surveyor or a licensed civil engineer with surveying experience to within ±0.01 feet to determine elevations relative to mean sea level. Latitude and longitude of the monitor wells will be determined to within one meter. The surveyed monitor well elevations and monitor well locations will be submitted electronically to the State Department of Water Resources Geotracker database.

2.2.3 Well Development and Groundwater Sampling

The monitor wells will be developed at least 48 hours after construction in order to allow time for seals to set. The wells will be developed by using a surge block and a submersible field portable purge pump. The wells will be pumped then surged for approximately 35 to 40 strokes to set the filter pack, followed by pumping of the wells of approximately 5-10 wellbore volumes. Groundwater parameters for pH, temperature, conductivity, and turbidity will be monitored to help assure that the wells are adequately developed. In the event that a well goes dry during

development, the well will be allowed to recover to 80 percent of static levels, surged and pumped in an effort attain adequate well development.

Wells will be allowed to stabilize for at least 24 hours prior to measuring groundwater levels after development. The wells will be opened, allowed to equilibrate, and groundwater levels measured. The wells will be allowed to remain open for 5 to 10 minutes after which the water levels will be measured again. This process will continue until stable depth to water readings are obtained in the wells (±0.02 feet). The wells will be pumped or bailed until approximately three to five wetted well casing volumes, or at least five gallons of groundwater, have been removed, whichever is greater, or until the well goes dry. Temperature, pH, conductivity, turbidity, and dissolved solids/oxygen will also be measured, until generally stabilized (± 10%) in effort to assure that water representative of aquifer conditions is entering the wells prior to sampling. Measurements will be taken at regular intervals during purging. After purging is completed, the wells will be sampled in the order purged. This sequence will allow for maximum recovery, anticipated to be at least 80 percent of static levels or for two hours. In high permeability areas, recovery typically approaches 100 percent. If a well remains dry after purging, it will be allowed to remain open for at least two hours after which an attempt will be made to sample the well. If the well is still dry, an attempt will be made to sample the well on the next day without purging. If the well still has not recovered, the well will be sampled during the next scheduled quarterly monitoring event at the Site. Pre-purge samples will be collected from any well that previously purged dry and did not recover sufficiently within two hours for sampling. These wells will then be purged and allowed to recover. If these wells recover sufficiently, a groundwater sample will then be collected and submitted for analysis and the pre-purge sample will not be submitted for analysis. Groundwater samples for laboratory analysis will be collected using a separate disposable bailer for each well, and transferred to the appropriate laboratory supplied containers. Samples will be transported under chain of custody documentation to Analytical Sciences, Inc, a Department of Health Services certified laboratory, in Petaluma, California for analysis. All samples will be collected following SCS Standard Soil and Water Sampling Procedures and QA/QC Protocol (Appendix A). Chain-of-Custody documentation will be maintained at all times. The water generated by development and sampling will be stored at the Site in 55-gallon UN/DOT-approved 17 E/H drums, pending characterization and disposal.

2.2.4 Laboratory Analysis

Soil samples collected from the new wellbores will be analyzed for pentachlorophenol, tetrachlorophenols and trichlorophenol using the Canadian Pulp Method, for pH, and for total organic carbon. Groundwater samples collected from the newly installed wells will be analyzed for pentachlorophenol, tetrachlorophenols and trichlorophenol using the Canadian Pulp Method.

2.2.5 Reporting

The newly installed monitor wells will be sampled initially and the results presented in a report of investigation. The wells will then be incorporated as part of a quarterly monitoring program for the Site. If the wells are installed within a several week period (3-4 weeks) prior to the next scheduled quarterly monitoring event, the wells will be incorporated as part of the regularly

scheduled quarterly monitoring program. Analytical results for quarterly events will be presented in a quarterly monitoring report. An annual monitoring report will be presented and include evaluation of annual and historic data collected and recommendations for changes to the monitoring program, additional investigation, remedial actions, or closure, as appropriate.

3.0 CLOSURE

The work proposed herein will be performed upon receipt of NCRWQCB approval, and upon receipt of the necessary access agreements, drilling and encroachment permits for workplan implementation. We look forward to continuing to work with you on this project and trust this provides the information you require at this time. If additional information is required, or if you have any questions, please call SCS at 707.476.1590.

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Distribution List
File No. 01203316.00

Mr. Rich Graham
Schmidbauer Lumber, Inc.
P.O. Box 152
Eureka, CA 95502

Mr. Mark Verhay
Humboldt County Division of Environmental Health
100 H Street, Suite 100
Eureka, CA 95501

Figures

Source of Base Map: DeLorme 2000®

SCS ENGINEERS 3645 WESTWIND BOULEVARD SANTA ROSA, CA 95403 PH. (707) 546–9461 FAX (707) 544–5769	SITE LOCATION MAP SCHMIDBAUER LUMBER COMPANY 1099 WATERFRONT DRIVE EUREKA, CALIFORNIA	APPROX. SCALE IN MILES 0 1 2 FIGURE: 1

PROJ. NO:	TAKEN BY:	FILE:
01203316.00		3316SiteLocMap
DATE: 07/15/05	CREATED BY JJM	APP. BY: KWF

WASHINGTON

UNOCAL BULK PLANT

WATERFRONT DRIVE

LUMBER YARD
STORAGE AREA

LOG DECK

MILL #1
(MAIN BUILDING)

MILL #2

APPROXIMATE
PCP (SOURCE)
RELEASE AREA

APPROXIMATE
LOCATION
OF FORMER
WOOD
TREATMENT
AREA

OFFICE

CHIP
BINS

OPEN

OPEN

B-1 B-2 B-4 B-5 B-6 B-7 B-8 B-9 B-10 B-11 B-12 B-13 B-14 B-15 B-16 B-17 B-18 B-19 B-20 B-22 B-101 B-102 B-103 B-104 B-105 B-106 B-107 B-108 B-109

MW-1 MW-2 MW-3R MW-4 MW-5 MW-6 MW-7 MW-8D MW-9D

MW-3
(Abandoned)

P

DRIVEWAY

RAILROAD AVENUE

DRY KILN
BUILDING

APPROXIMATE SOIL AND
DRUM STORAGE AREA

LEGEND

- APPROXIMATE LOCATION OF FORMER WOOD TREATMENT AREA
- APPROXIMATE LOCATION OF PCP (SOURCE) RELEASE AREA
- APPROXIMATE LOCATION OF INACCESSABLE AREAS
- SHALLOW WELL LOCATION
  P = PROPOSED
- DEEP WELL LOCATION
- BORING LOCATION

GRAPHIC SCALE
100 0 100 200
(IN FEET)
1" = 100 Ft.

N

SCS ENGINEERS ENVIRONMENTAL CONSULTANTS 3645 WESTWIND BOULEVARD SANTA ROSA, CALIFORNIA PH. (707) 546-9461 FAX. (707) 544-5769	SHEET TITLE SITE PLAN WITH PROPOSED LOCATIONS OF ADDITIONAL SHALLOW MONITORING WELLS
PROJ. NO. 1203316.00 · DWN. BY: JJM · ACAD FILE: 3316.00_Site_4-7'_10-04 DATE 7/27/05 · CHK. BY: KWF · APP. BY: KWF	PROJECT TITLE SCHMIDBAUER LUMBER COMPANY 1099 WATERFRONT DRIVE EUREKA, CALIFORNIA
	SCALE: 1" = 100' FIGURE NO. 2

WASHINGTON

UNOCAL BULK PLANT

WATERFRONT DRIVE

LUMBER YARD
STORAGE AREA

MILL #1
(MAIN BUILDING)

MILL #2

LOG DECK

ASPHALT

DRY KILN
BUILDING

LOG DECK

RAILROAD AVENUE

DRIVEWAY

B-1 [16]
B-2
B-3 [4.8]
B-4 [2.7]
B-5 [5.7]
B-6
B-7
B-8
B-9
B-10
B-11
B-12
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B-14
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B-16
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B-20
B-21
B-22
B-101
B-102
B-103
B-104
B-105
B-106
B-107
B-108
B-109

MW-1
MW-2
MW-3
(Abandoned)
MW-3R
(OVERHEAD)
MW-4
MW-5
MW-6
MW-7
MW-8D [7.6]
MW-9D

<1.0
10

N

GRAPHIC SCALE
100 0 100 200
(IN FEET)
1" = 100 Ft.

LEGEND

- ISOCONCENTRATION LINE PCP IN SOIL mg/kg
- SHALLOW WELL LOCATION
- DEEP WELL LOCATION
- BORING LOCATION

SCS ENGINEERS
ENVIRONMENTAL CONSULTANTS
3645 WESTWIND BOULEVARD
SANTA ROSA, CALIFORNIA
PH. (707) 546-9461 FAX. (707) 544-5769

PROJ. NO. 1203316.00	DWN. BY: JJM	ACAD FILE: 3316.00_Site_4-7'_10-04
DATE 7/27/05	CHK. BY: KWF	APP. BY:

SHEET TITLE
SITE PLAN – PCP IN SOIL – 4'-7'

PROJECT TITLE
SCHMIDBAUER LUMBER COMPANY
1099 WATERFRONT DRIVE
EUREKA, CALIFORNIA

SCALE:
1" = 100'

FIGURE NO.
3a

WASHINGTON

UNOCAL BULK PLANT

WATERFRONT DRIVE

LUMBER YARD
STORAGE AREA

MILL #1
(MAIN BUILDING)

MILL #2

LOG DECK

ASPHALT

LOG DECK

DRY KILN
BUILDING

RAILROAD AVENUE

EVEWAY

B-1 [10]
B-2
B-3
B-4 [2.6]
B-5 [2.1]
B-6
B-7
B-8
B-9
B-10
B-11
B-12
B-13
B-14
B-15
B-16
B-17
B-18
B-19
B-20
B-21
B-22
B-101
B-102
B-103
B-104
B-105
B-106
B-107
B-108
B-109
MW-1
MW-2
MW-3 (Abandoned)
MW-3R (OVERHEAD)
MW-4
MW-5
MW-6
MW-7
MW-8D [5.3]
MW-9D
10
1.0

GRAPHIC SCALE
100 0 100 200
(IN FEET)
1" = 100 Ft.

LEGEND

- ISOCONCENTRATION LINE PCP IN SOIL mg/kg
- SHALLOW WELL LOCATION
- DEEP WELL LOCATION
- BORING LOCATION

SCS ENGINEERS
ENVIRONMENTAL CONSULTANTS
3645 WESTWIND BOULEVARD
SANTA ROSA, CALIFORNIA
PH. (707) 546-9461 FAX. (707) 544-5769

PROJ. NO.	DWN. BY:	ACAD FILE:
1203316.00	JJM	3316.00_Site_4-7'_10-04
DATE	CHK. BY:	APP. BY:
7/27/05	KWF	KWF

SHEET TITLE
SITE PLAN – PCP IN SOIL 9'–10'

PROJECT TITLE
SCHMIDBAUER LUMBER COMPANY
1099 WATERFRONT DRIVE
EUREKA, CALIFORNIA

SCALE:
1" = 100'

FIGURE NO.
3b

WASHINGTON

UNOCAL BULK PLANT

WATERFRONT DRIVE

LUMBER YARD
STORAGE AREA

MILL #1
(MAIN BUILDING)

MILL #2

LOG DECK

LOG DECK

ASPHALT

DRY KILN
BUILDING

RAILROAD AVENUE

TION AND GRADIENT–
/04

ION AND GRADIENT–

IVEWAY

B–21
B–19
B–15
B–14
B–16
B–7
B–103
B–105
B–6
MW–4
MW–5
B–107
B–106
B–2
<1.0
B–3
[6.0]
B–9
MW–6
B–1
B–17
MW–1
MW–8D
B–108
B–20
MW–2
B–109
MW–9D
B–4
B–18
MW–7
B–104
B–5
B–102
B–13
MW–3R
(OVERHEAD)
B–22
B–101
B–10
MW–3
(Abandoned)
B–12
B–11
B–8

GRAPHIC SCALE
100 0 100 200
(IN FEET)
1" = 100 Ft.

LEGEND

- ISOCONCENTRATION LINE PCP IN SOIL mg/kg
- SHALLOW WELL LOCATION
- DEEP WELL LOCATION
- BORING LOCATION

SCS ENGINEERS ENVIRONMENTAL CONSULTANTS 3645 WESTWIND BOULEVARD SANTA ROSA, CALIFORNIA PH. (707) 546-9461 FAX. (707) 544-5769	SHEET TITLE SITE PLAN – PCP IN SOIL 14'–16'	SCALE: 1" = 100'
PROJ. NO. 1203316.00 / DWN. BY: JJM / ACAD FILE: 3316.00_Site_4-7'_10-04 DATE 7/27/05 / CHK. BY: KWF / APP. BY: KWF	PROJECT TITLE SCHMIDBAUER LUMBER COMPANY 1099 WATERFRONT DRIVE EUREKA, CALIFORNIA	FIGURE NO. 3c

WASHINGTON

UNOCAL BULK PLANT

WATERFRONT DRIVE

LUMBER YARD
STORAGE AREA

MILL #1
(MAIN BUILDING)

LOG DECK

MILL #2

ASPHALT

RIVEWAY

RAILROAD AVENUE

DRY KILN
BUILDING

LOG DECK

B-1 B-2 B-3 B-4 B-5 B-6 B-7 B-8 B-9 B-10 B-11 B-12 B-13 B-14 B-15 B-16 B-17 B-18 B-19 B-20 B-21 B-22 B-101 B-102 B-103 B-104 B-105 B-106 B-107 B-108 B-109

MW-1 MW-2 MW-3 (Abandoned) MW-3R MW-4 MW-5 MW-6 MW-7 MW-8D MW-9D

(OVERHEAD)

(<1) 10 100 1,000

N

GRAPHIC SCALE
100 0 100 200
(IN FEET)
1" = 100 Ft.

LEGEND

ISOCONCENTRATION LINE
PCP IN GROUNDWATER µg/l

SHALLOW WELL LOCATION

DEEP WELL LOCATION

BORING LOCATION

SCS ENGINEERS
ENVIRONMENTAL CONSULTANTS
3645 WESTWIND BOULEVARD
SANTA ROSA, CALIFORNIA
PH. (707) 546-9461 FAX. (707) 544-5769

PROJ. NO.	DWN. BY:	ACAD FILE:
1203316.00	JJM	3316.00_Site_4-7'_10-04
DATE	CHK. BY:	APP. BY:
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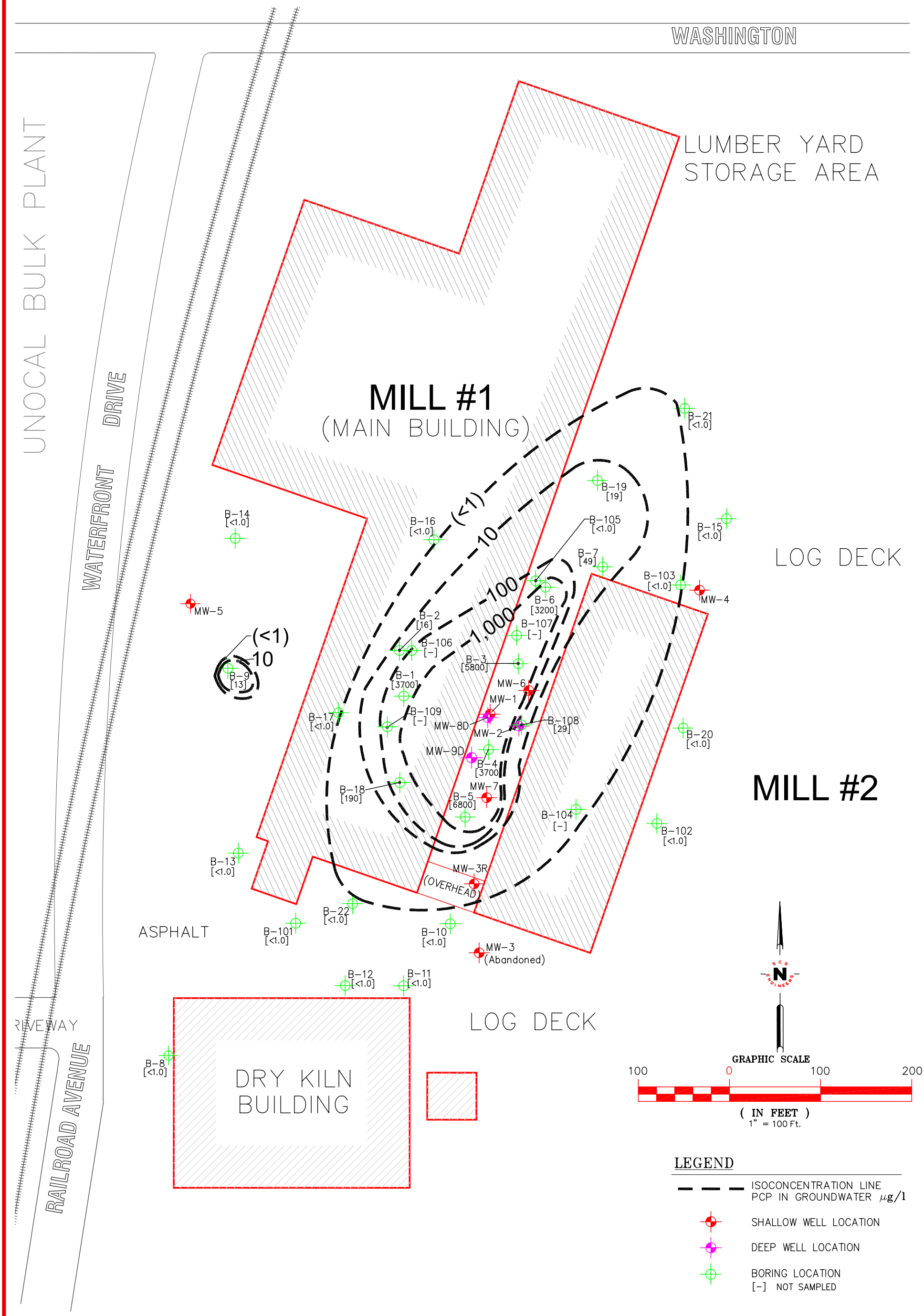
SHEET TITLE
SITE PLAN – PCP IN GROUNDWATER – 1997

PROJECT TITLE
SCHMIDBAUER LUMBER COMPANY
1099 WATERFRONT DRIVE
EUREKA, CALIFORNIA

SCALE:
1" = 100'

FIGURE NO.
4



SCS ENGINEERS
ENVIRONMENTAL CONSULTANTS
3645 WESTWIND BOULEVARD
SANTA ROSA, CALIFORNIA
PH. (707) 546-9461 FAX. (707) 544-5769

PROJ. NO.	DWN. BY:	ACAD FILE:
1203316.00	JJM	3316.00_Site_4-7'_10-04
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7/27/05	KWF	KWF

SHEET TITLE
CUMMULATIVE GROUNDWATER ANALYTICAL RESULTS FOR BORINGS – 5'-7'

PROJECT TITLE
SCHMIDBAUER LUMBER COMPANY
1099 WATERFRONT DRIVE
EUREKA, CALIFORNIA

SCALE:
1" = 100'

FIGURE NO.
5a

WASHINGTON

UNOCAL BULK PLANT

DRIVE

WATERFRONT

LUMBER YARD
STORAGE AREA

MILL #1
(MAIN BUILDING)

B-21
[<1.0]

B-19
[-]

B-14
[-]

B-16
[-]

B-15
[-]

B-105
[<1.0]

B-7
[-]

B-103
[<1.0]

MW-4

LOG DECK

MW-5

B-6
[-]

B-106
[<1.0]

B-2
[-]

B-107
[68]

B-3
[-]

(<1)
10
100
1,000
? ? ? ?

B-9
[-]

B-1
[-]

MW-6

MW-1

B-17
[-]

MW-8D
[1000]

B-108
[-]

B-109
[2400]

MW-2

B-20
[<1.0]

B-4
[-]

MW-9D

MILL #2

B-18
[-]

MW-7

B-5
[-]

B-104
[<1.0]

B-102
[<1.0]

B-13
[-]

MW-3R
(OVERHEAD)

B-22
[<1.0]

ASHALT

B-101
[<1.0]

B-10
[-]

MW-3
(Abandoned)

B-12
[-]

B-11
[-]

RIVEWAY

LOG DECK

B-8
[-]

DRY KILN
BUILDING

RAILROAD AVENUE

N

SCS ENGINEERS

GRAPHIC SCALE

100 0 100 200

(IN FEET)
1" = 100 Ft.

ISOCONCENTRATION LINE
PCP IN GROUNDWATER $\mu g/l$

SHALLOW WELL LOCATION

DEEP WELL LOCATION

BORING LOCATION
[-] NOT SAMPLED

SCS ENGINEERS ENVIRONMENTAL CONSULTANTS 3645 WESTWIND BOULEVARD SANTA ROSA, CALIFORNIA PH. (707) 546-9461 FAX. (707) 544-5769	SHEET TITLE CUMMULATIVE GROUNDWATER ANALYTICAL RESULTS FOR BORINGS – 9'–10' PROJECT TITLE SCHMIDBAUER LUMBER COMPANY 1099 WATERFRONT DRIVE EUREKA, CALIFORNIA	SCALE: 1" = 100' FIGURE NO. 5b

PROJ. NO.	DWN. BY:	ACAD FILE:
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WASHINGTON

UNOCAL BULK PLANT

DRIVE

WATERFRONT

LUMBER YARD
STORAGE AREA

MILL #1
(MAIN BUILDING)

LOG DECK

MILL #2

ASPHALT

RIVEWAY

RAILROAD AVENUE

DRY KILN
BUILDING

LOG DECK

B-1* [10]
B-2 [<1.0]
B-3 [12]
B-4 [<1.0]
B-5 [6800]
B-6 [-]
B-7
B-8 [-]
B-9 [-]
B-10 [-]
B-11 [-]
B-12 [-]
B-13 [-]
B-14 [-]
B-15 [<1.0]
B-16 [-]
B-17 [<1.0]
B-18 [<1.0]
B-19 [-]
B-20 [<1.0]
B-22 [-]
B-101 [<1.0]
B-102 [<1.0]
B-103 [<1.0]
B-104 [<1.0]
B-105 [<1.0]
B-106 [<1.0]
B-107 [-]
B-108 [-]
B-109 [<1.0]
MW-1
MW-2
MW-3 (Abandoned)
MW-3R
MW-4
MW-5
MW-6
MW-7
MW-8D [<1.0]
MW-9D

(<1)
10

GRAPHIC SCALE
100 0 100 200
(IN FEET)
1" = 100 Ft.

LEGEND

- ISOCONCENTRATION LINE PCP IN GROUNDWATER µg/l
- SHALLOW WELL LOCATION
- DEEP WELL LOCATION
- BORING LOCATION
  [-] NOT SAMPLED

SCS ENGINEERS
ENVIRONMENTAL CONSULTANTS
3645 WESTWIND BOULEVARD
SANTA ROSA, CALIFORNIA
PH. (707) 546-9461 FAX. (707) 544-5769

PROJ. NO.	DWN. BY:	ACAD FILE:
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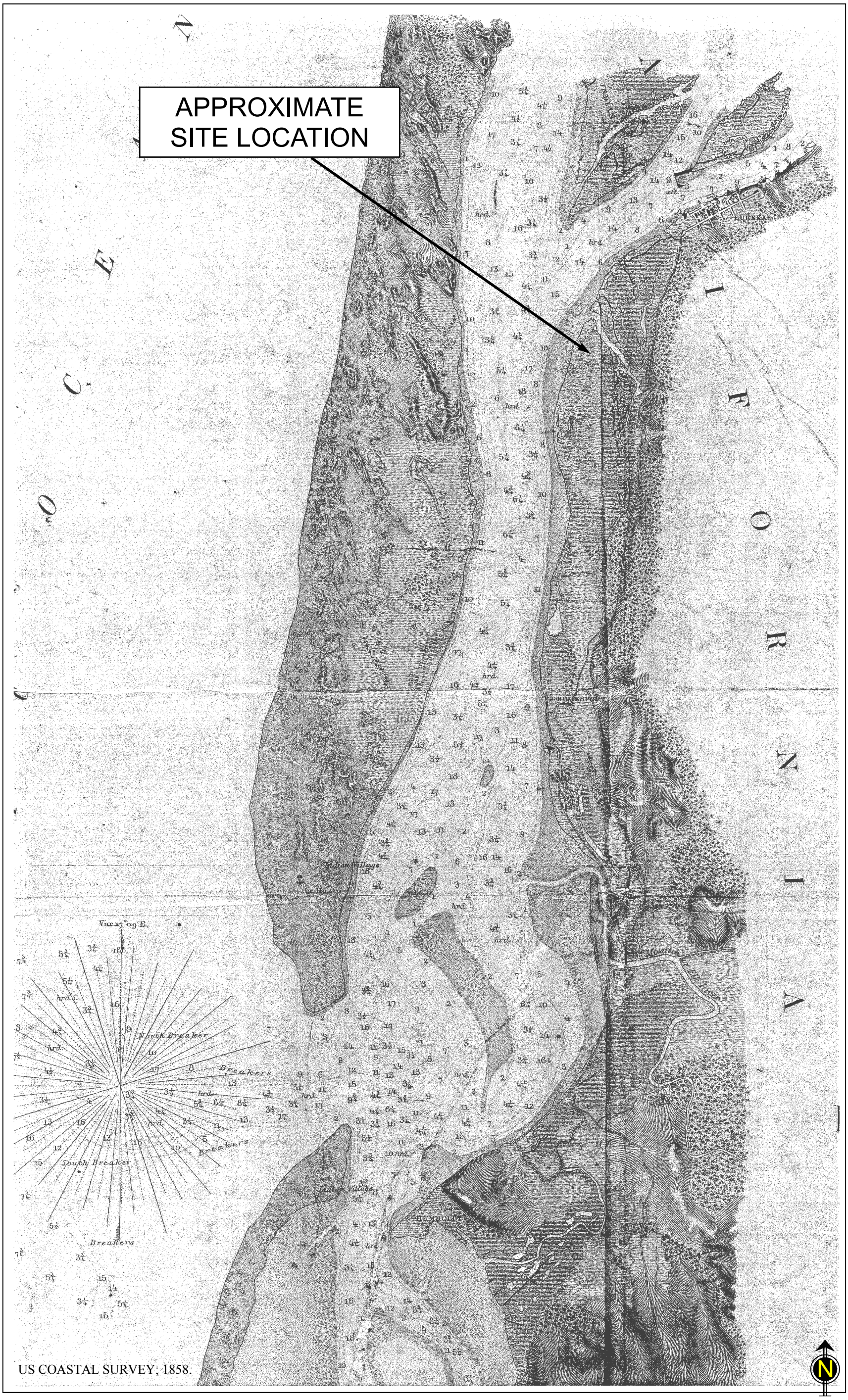
SHEET TITLE
CUMMULATIVE GROUNDWATER ANALYTICAL RESULTS FOR BORINGS – 14'–20'

PROJECT TITLE
SCHMIDBAUER LUMBER COMPANY
1099 WATERFRONT DRIVE
EUREKA, CALIFORNIA

SCALE:
1" = 100'

FIGURE NO.
5c



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3645 WESTWIND BOULEVARD
SANTA ROSA, CA 95403
PH. (707) 546–9461 FAX (707) 544–5769

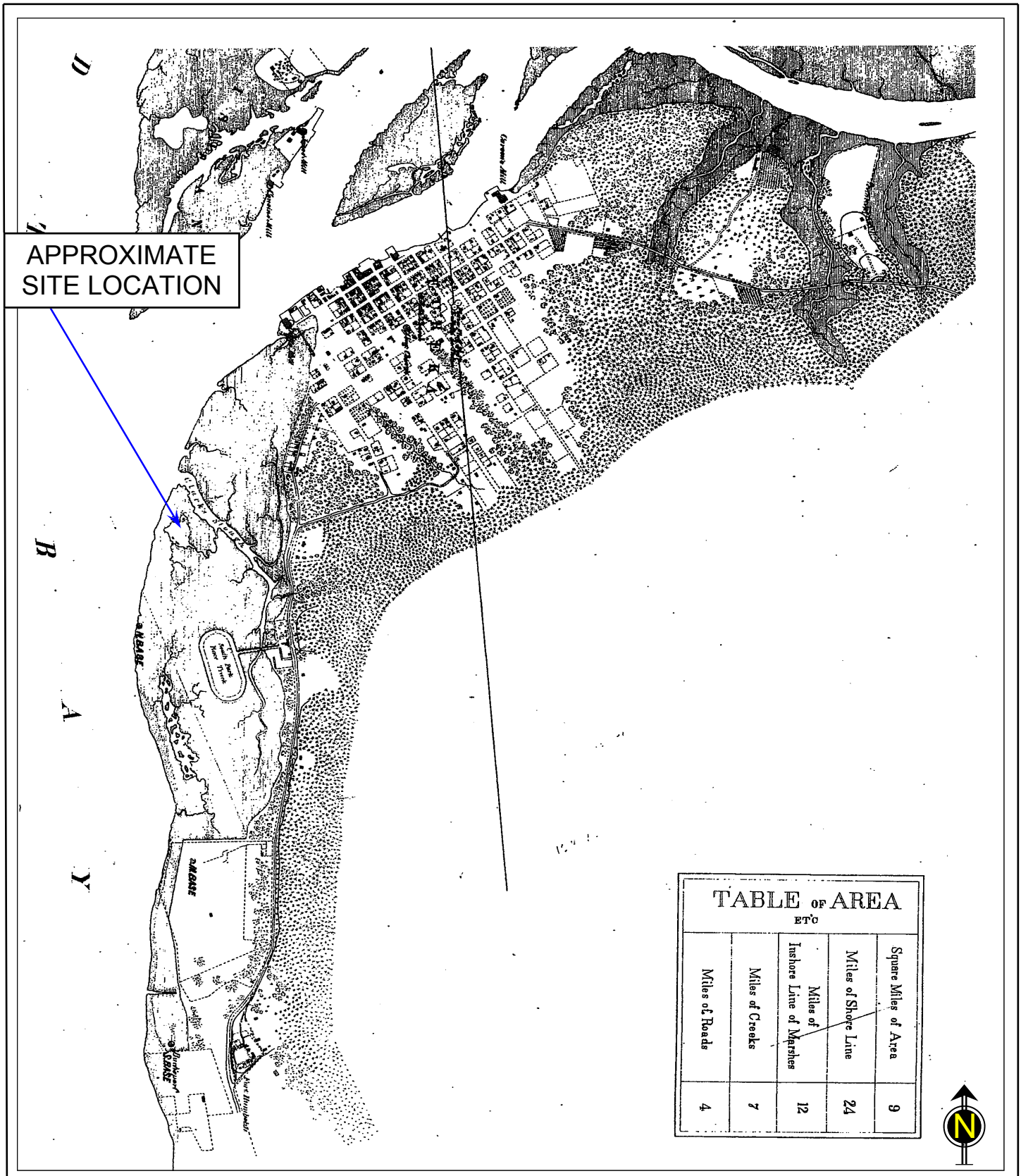
PROJ. NO: 01203316.00	TAKEN BY:	FILE: 3316Site_Topo
DATE: 7/27/05	CREATED BY JJM	APP. BY: KWF

HISTORIC TOPOGRAPHIC MAP 1858

SCHMIDBAUER LUMBER COMPANY
1099 WATERFRONT DRIVE
EUREKA, CALIFORNIA

APPROX. SCALE: *Not to scale*

FIGURE: 6a



US COASTAL 1870; 1:24,000

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DATE:	CREATED BY	APP. BY:
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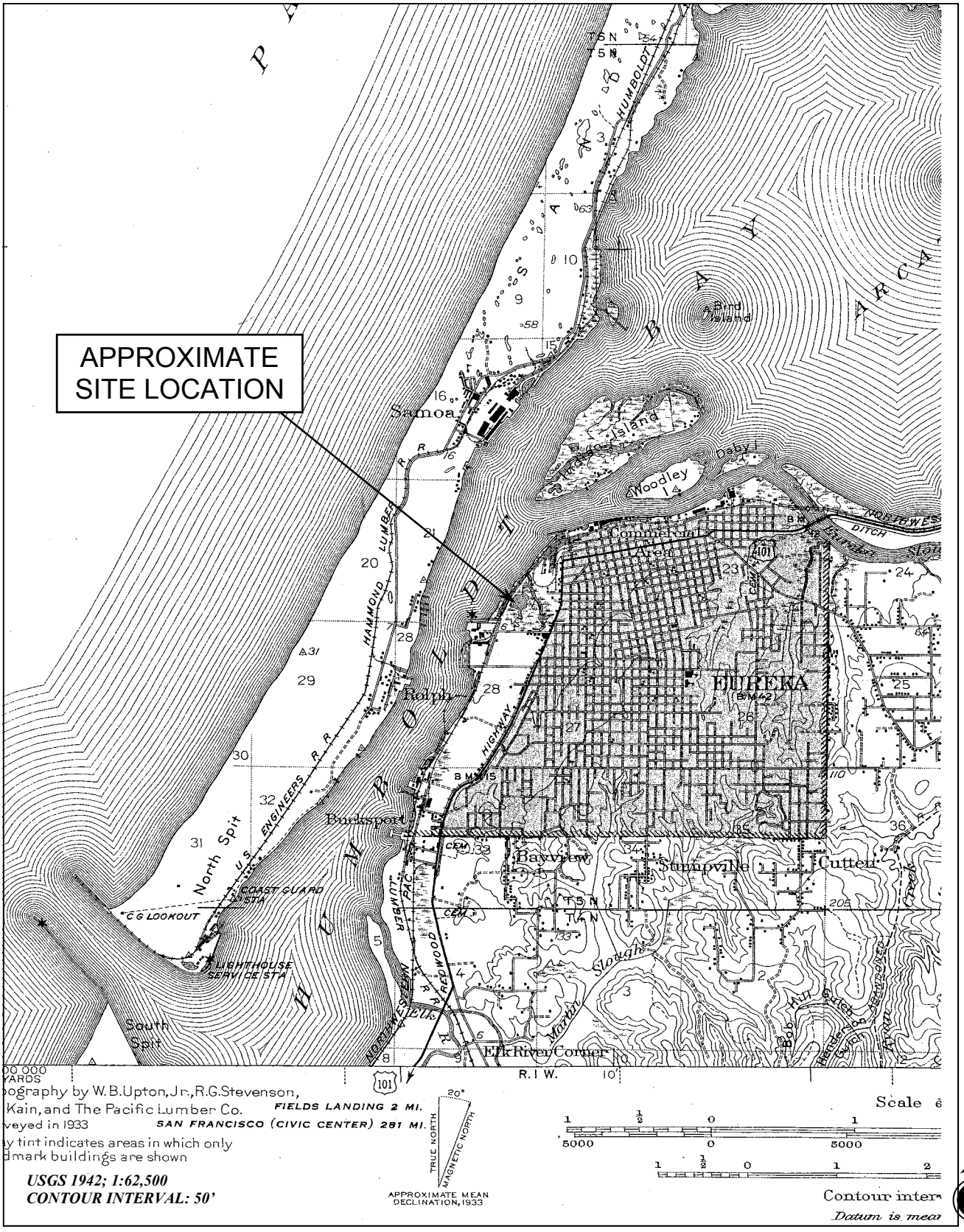
HISTORIC TOPOGRAPHIC MAP - 1870

SCHMIDBAUER LUMBER COMPANY
1099 WATERFRONT DRIVE
EUREKA, CALIFORNIA

APPROX. SCALE
Not to Scale

FIGURE:
6b



ography by W.B.Upton, Jr., R.G.Stevenson, Kain, and The Pacific Lumber Co.
veyed in 1933
y tint indicates areas in which only dmark buildings are shown

USGS 1942; 1:62,500
CONTOUR INTERVAL: 50'

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3645 WESTWIND BOULEVARD
SANTA ROSA, CA 95403
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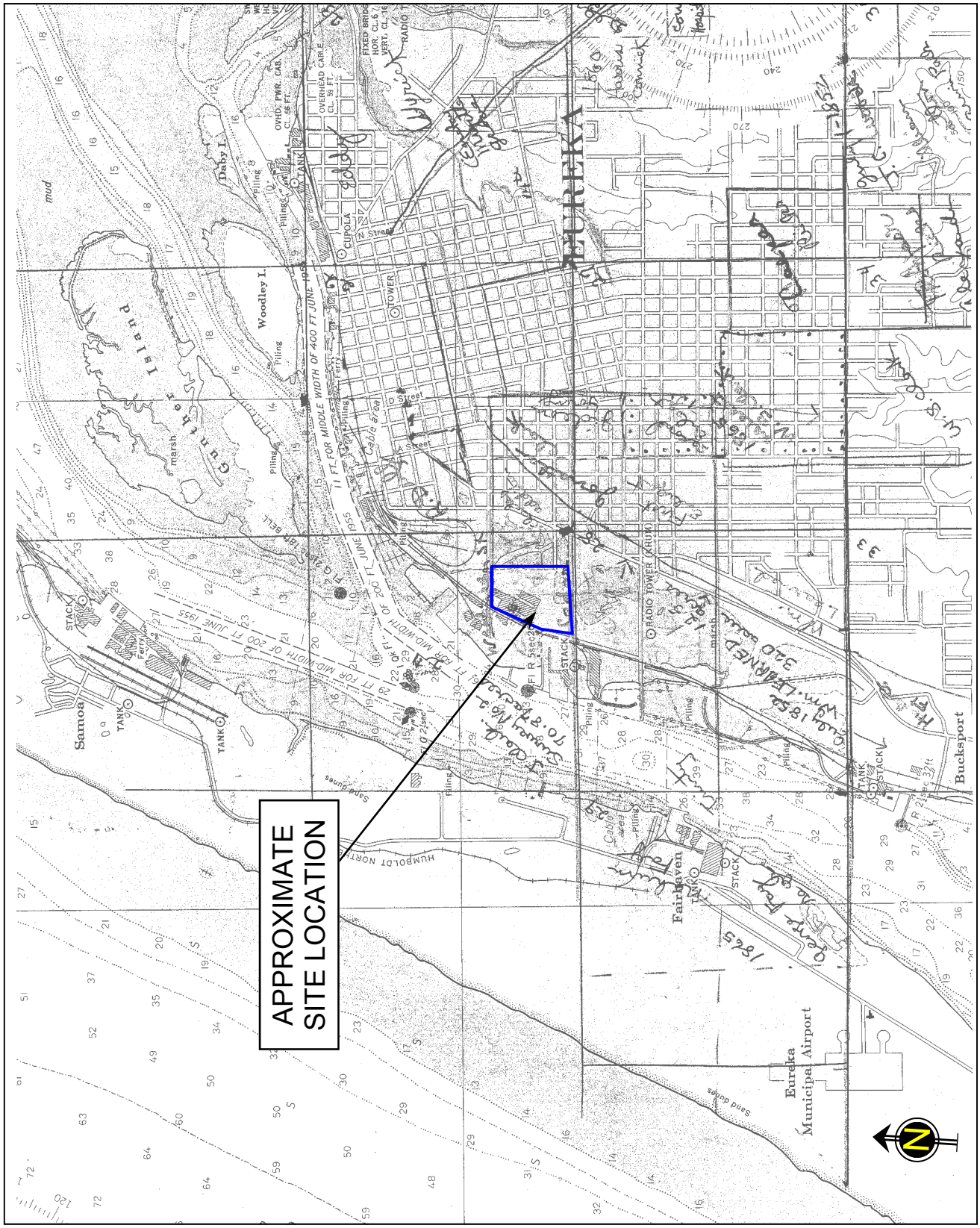
PROJ. NO: 01203316.00	TAKEN BY:	FILE: 3316Site_Topo
DATE: 7/27/05	CREATED BY: JJM	APP. BY: KWF

HISTORIC TOPOGRAPHIC MAP - 1942

SCHMIDBAUER LUMBER COMPANY
1099 WATERFRONT DRIVE
EUREKA, CALIFORNIA

APPROX. SCALE
IN MILES
0 1 2

FIGURE:
6c



US COAST AND GEODETIC SURVEY, HUMBOLDT BAY; 1954; REV.1956.

SCS ENGINEERS

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SANTA ROSA, CA 95403
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PROJ. NO:	TAKEN BY:	FILE:
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DATE:	CREATED BY	APP. BY:
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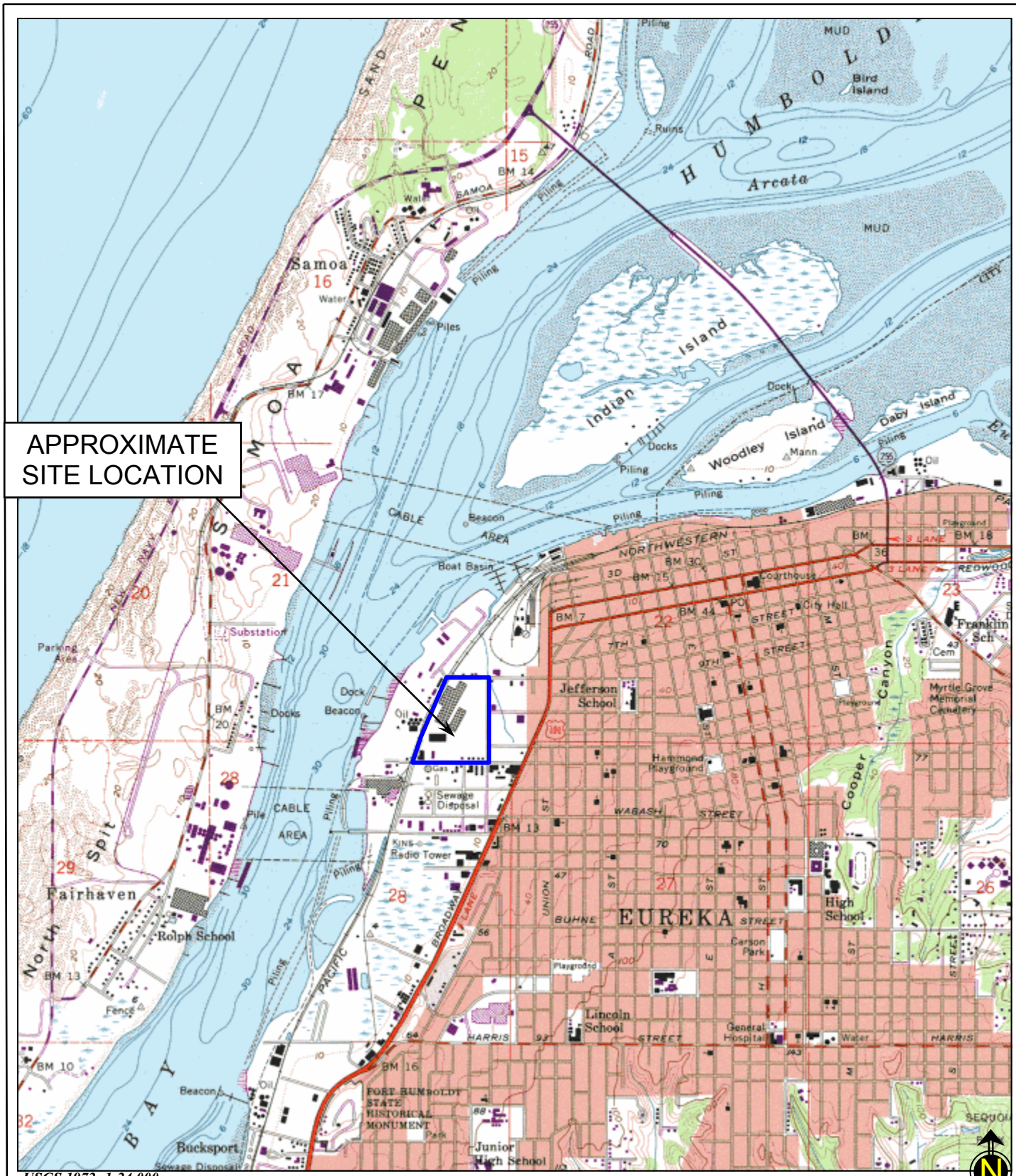
HISTORIC TOPOGRAPHIC MAP - 1956

SCHMIDBAUER LUMBER COMPANY
1099 WATERFRONT DRIVE
EUREKA, CALIFORNIA

APPROX. SCALE
Not to Scale

FIGURE:
6d



USGS 1972; 1:24,000
CONTOUR INTERVAL: 10'

SCS ENGINEERS

3645 WESTWIND BOULEVARD
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DATE:	**CREATED BY**	**APP. BY:**
7/27/05	JJM	KWF

HISTORIC TOPOGRAPHIC MAP - 1972

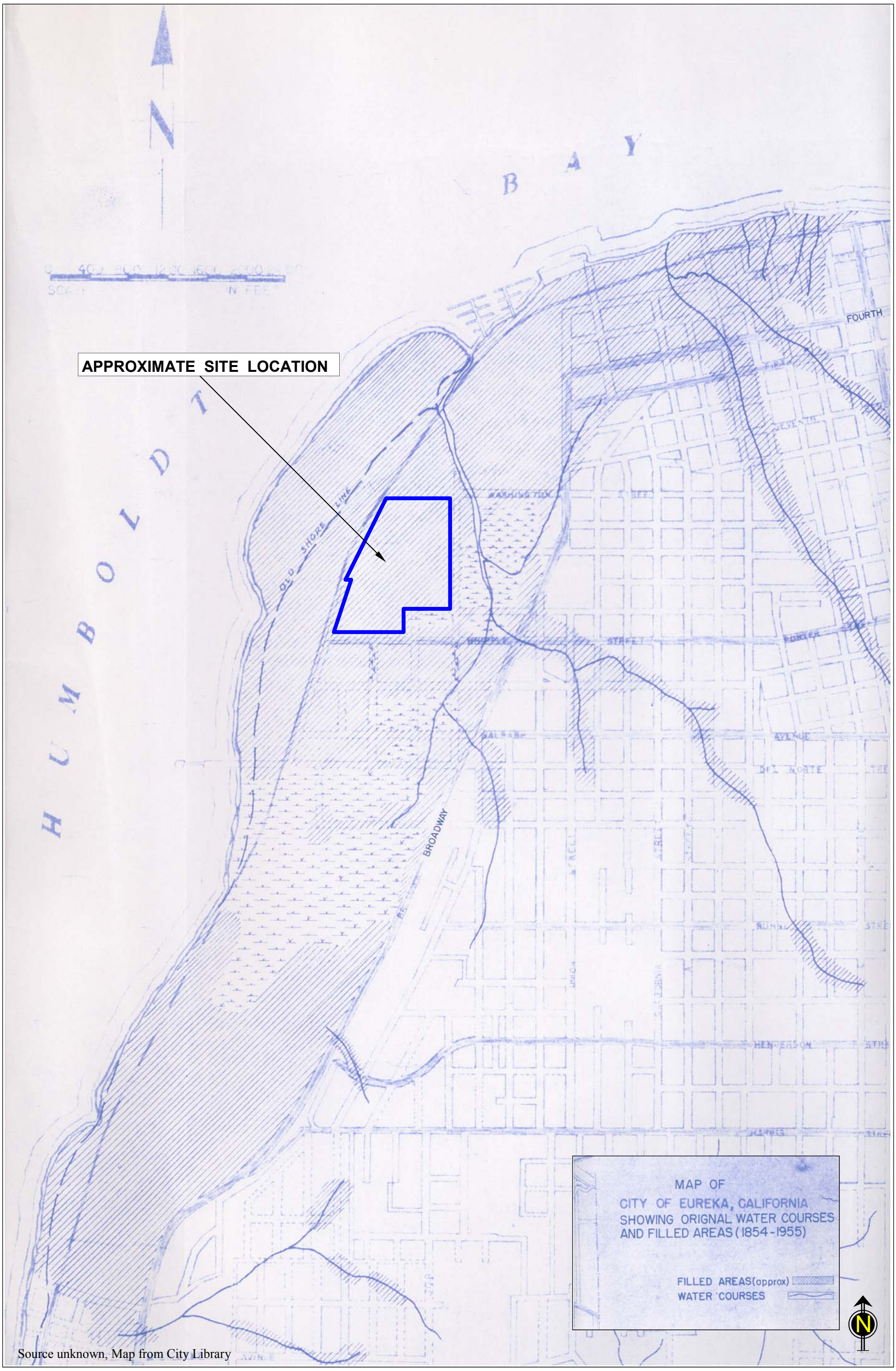
SCHMIDBAUER LUMBER COMPANY
1099 WATERFRONT DRIVE
EUREKA, CALIFORNIA

APPROX. SCALE

ENLARGED TO SHOW DETAIL

FIGURE:

6e



Source unknown, Map from City Library

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SANTA ROSA, CA 95403
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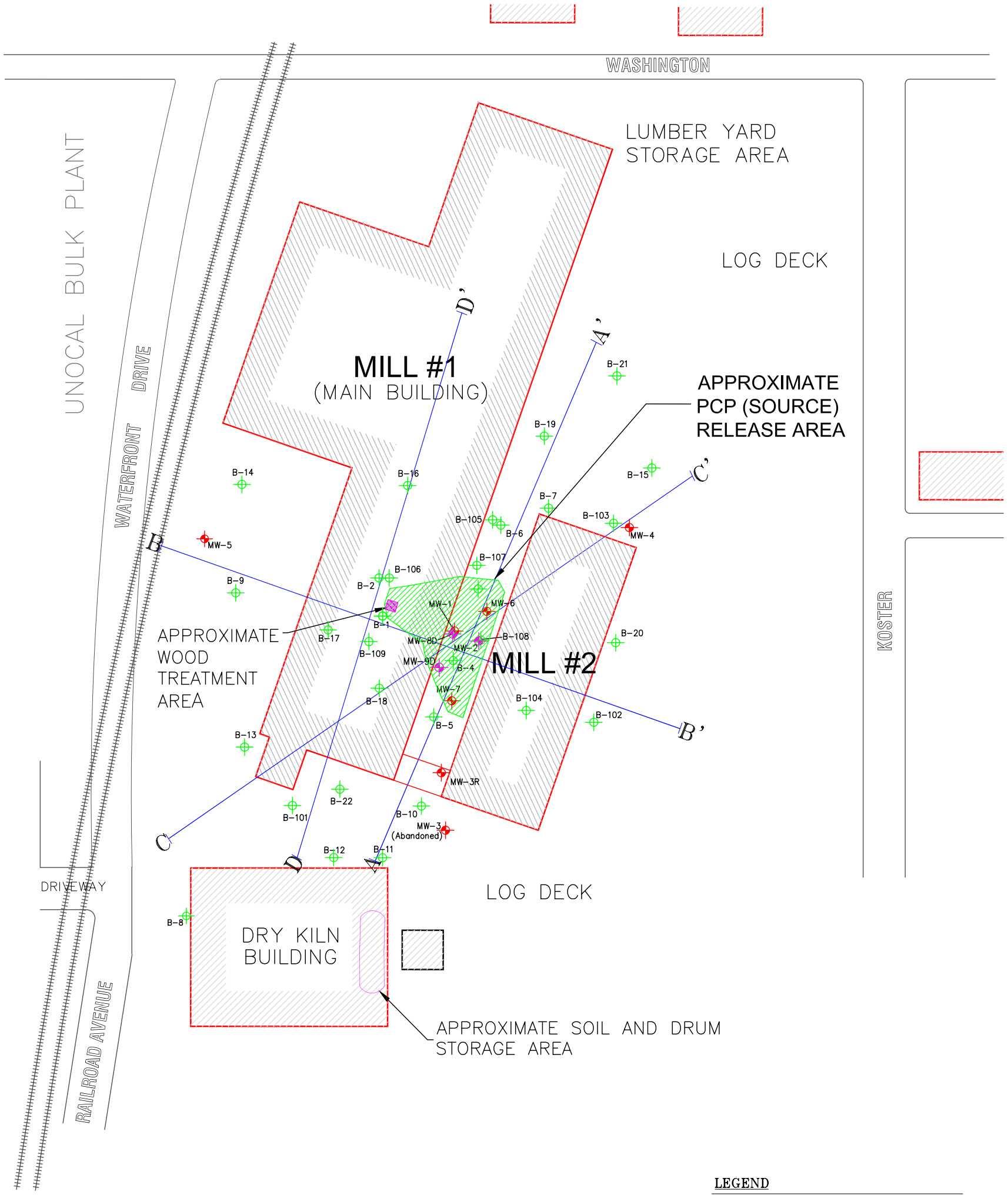
PROJ. NO:	TAKEN BY:	FILE:
01203316.00		_SiteFillMap
DATE:	CREATED BY	APP. BY:
7/27/05	JJM	KWF

MAP OF CITY OF EUREKA, CALIFORNIA
SHOWING ORIGINAL WATER COURSES AND FILL AREAS (1854-1955)

SCHMIDBAUER LUMBER COMPANY
1099 WATERFRONT DRIVE
EUREKA, CALIFORNIA

APPROX. SCALE: *Not to scale*

FIGURE: 7



LEGEND

- APPROXIMATE LOCATION OF PCP (SOURCE) RELEASE AREA
- A—A' APPROXIMATE LOCATION OF GEOLOGIC CROSS SECTION
- SHALLOW WELL LOCATION
- DEEP WELL LOCATION
- BORING LOCATION

APPROXIMATE SCALE IN FEET

150 0 150

N

SCS ENGINEERS

ENVIRONMENTAL CONSULTANTS

3645 WESTWIND BOULEVARD
SANTA ROSA, CALIFORNIA
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PROJ. NO.	DWN. BY:	ACAD FILE:
0120316.00	JJM	
DATE	CHK. BY:	APP. BY:
7/27/05	KWF	KWF

SHEET TITLE
SITE PLAN WITH GEOLOGIC SECTIONS

PROJECT TITLE
SCHMIDBAUER LUMBER COMPANY
1099 WATERFRONT DRIVE
EUREKA, CALIFORNIA

SCALE:
1" = 150'

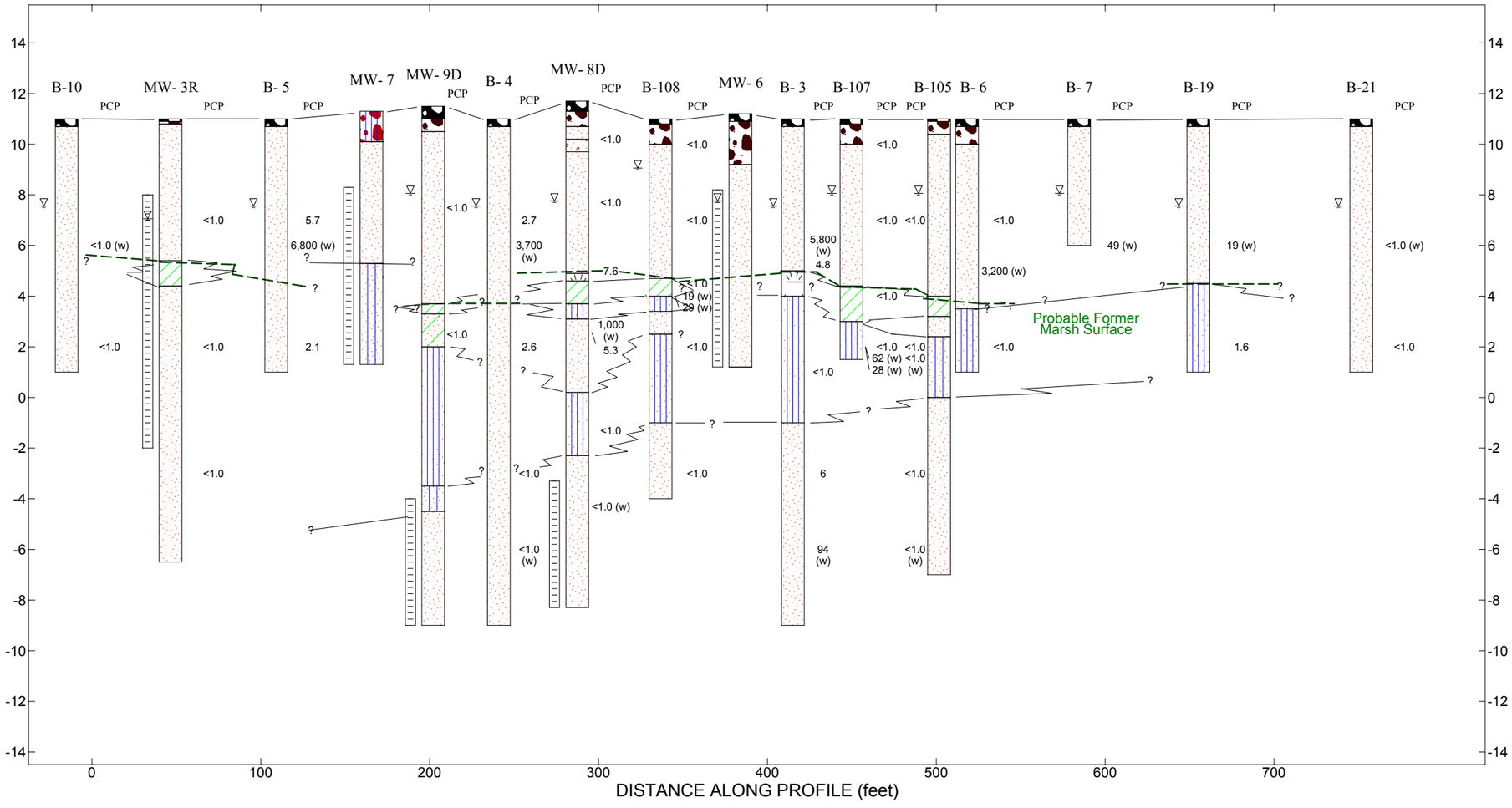
FIGURE NO.
8a

◄ South

A

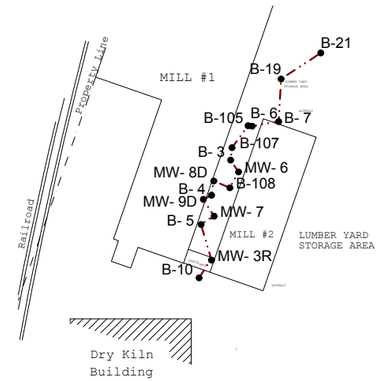
North ►

A'

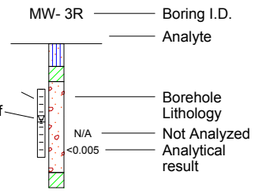


Explanation

- SILTY GRAVEL (GM)
- CLAYEY SAND (SC)
- SAND & GRAVEL - (base rock fill)
- SAND (SW), Well-graded
- SILTY SAND (SM)
- Asphalt
- SAND (SP), Poorly-graded
- CLAY (CL), Low Plasticity
- SAND with Silt (SP-SM), Poorly-graded
- Peat



LEGEND:



PCP	Concentration of Pentachlorophenol reported from laboratory analysis by EPA Method 8040.
(w)	Aqueous samples (initial drilling results)
<	Less-than numerical value of the detection limit.
mg/kg	Milligrams per kilogram (soil samples)
ug/L	Micrograms per Liter (aqueous samples)

Vertical Exaggeration: 15x

NO.	DATE	REVISIONS	DRN	CHK	DGS	ENG GS	CHF ENG	PROJ ENG
	10-19-04	ISSUED FOR REVIEW	SK					

SCS ENGINEERS

Schmidbauer Lumber
1099 Waterfront Drive
Eureka, California

Geologic Section A - A'

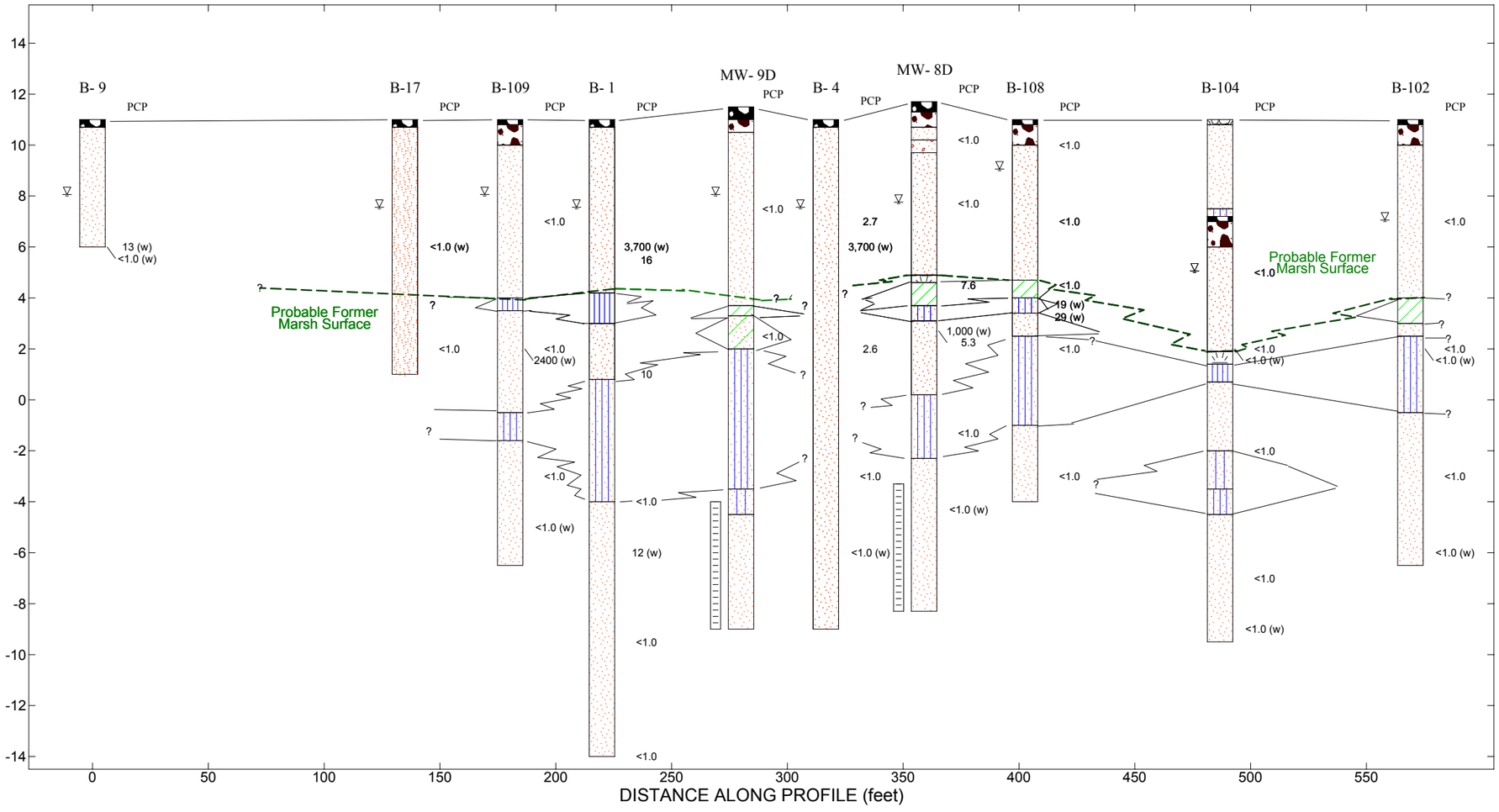
SCALE	JOB NO.	FIGURE NO.	REV.
1" = 75.0'	01203316.00	8b	1

◄ West

B

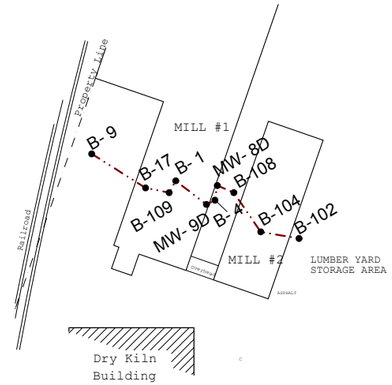
East ►

B'

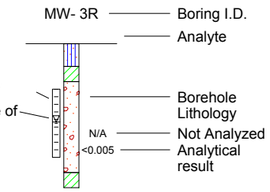


Explanation

- SAND (SW), Well-graded
- SAND (SP), Poorly-graded
- SAND with Silt (SP-SM), Poorly-graded
- CLAYEY SAND (SC)
- SILTY SAND (SM)
- SILT (ML)
- SILT with Sand (ML)
- CLAY (CL), Low Plasticity
- Peat
- Asphalt
- Concrete
- SAND & GRAVEL - (base rock fill)



LEGEND:



PCP	Concentration of Pentachlorophenol reported from laboratory analysis by EPA Method 8040.
(w)	Aqueous samples (initial drilling results)
<	Less-than numerical value of the detection limit.
mg/kg	Milligrams per kilogram (soil samples)
ug/L	Micrograms per Liter (aqueous samples)

Vertical Exaggeration: 11x

NO.	DATE	REVISIONS	DRN	CHK	DGS	ENG GS	CHF ENG	PROJ ENG
	10-19-04	ISSUED FOR REVIEW	SK					

SCS ENGINEERS

Schmidbauer Lumber
1099 Waterfront Drive
Eureka, California

Geologic Section B - B'

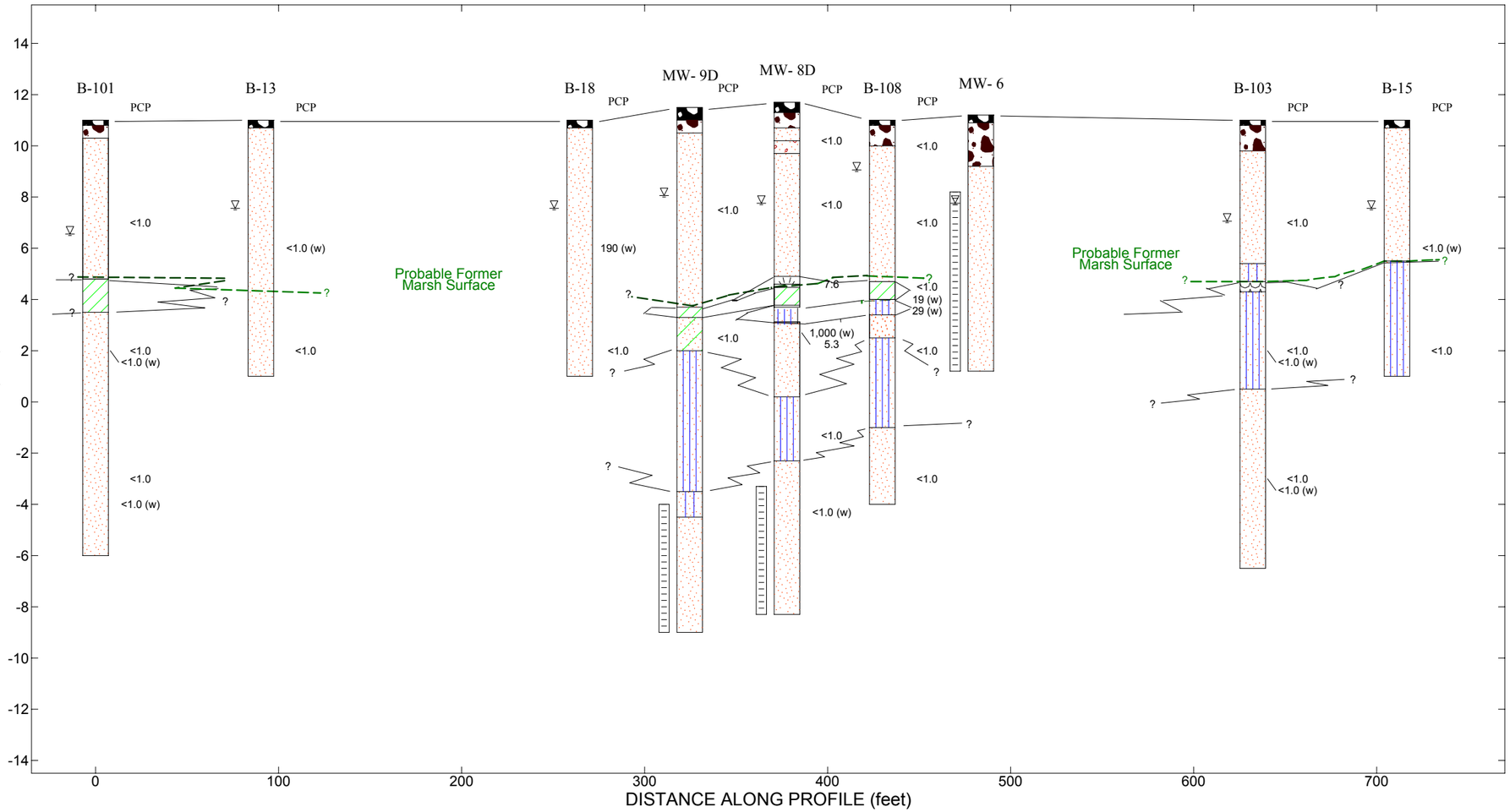
SCALE	JOB NO.	FIGURE NO.	REV.
1" = 55.0'	01203316.00	8c	1

◄ Southwest

C

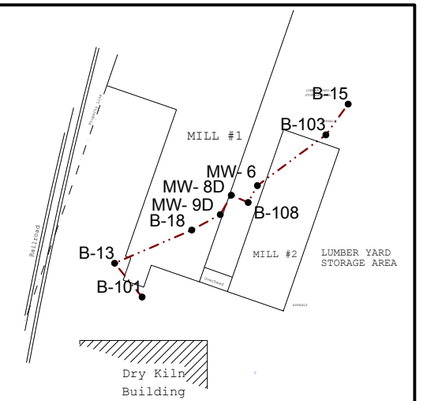
Northeast ►

C'

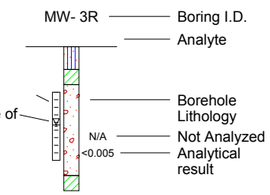


Explanation

- SAND (SW), Well-graded
- SAND (SP), Poorly-graded
- SAND with Silt (SP-SM), Poorly-graded
- CLAYEY SAND (SC)
- SILTY SAND (SM)
- CLAY (CL), Low Plasticity
- Peat
- Organic silt or clay, high plasticity
- Asphalt
- SAND & GRAVEL - (base rock fill)



LEGEND:



PCP	Concentration of Pentachlorophenol reported from laboratory analysis by EPA Method 8040.
(w)	Aqueous samples (initial drilling results)
<	Less-than numerical value of the detection limit.
mg/kg	Milligrams per kilogram (soil samples)
ug/L	Micrograms per Liter (aqueous samples)

Vertical Exaggeration: 14x

NO.	DATE	REVISIONS	DRN	CHK	DGS	ENG GS	CHF ENG	PROJ ENG
1	10-19-04	ISSUED FOR REVIEW	SK					

SCS ENGINEERS

Schmidbauer Lumber
1099 Waterfront Drive
Eureka, California

Geologic Section C - C'

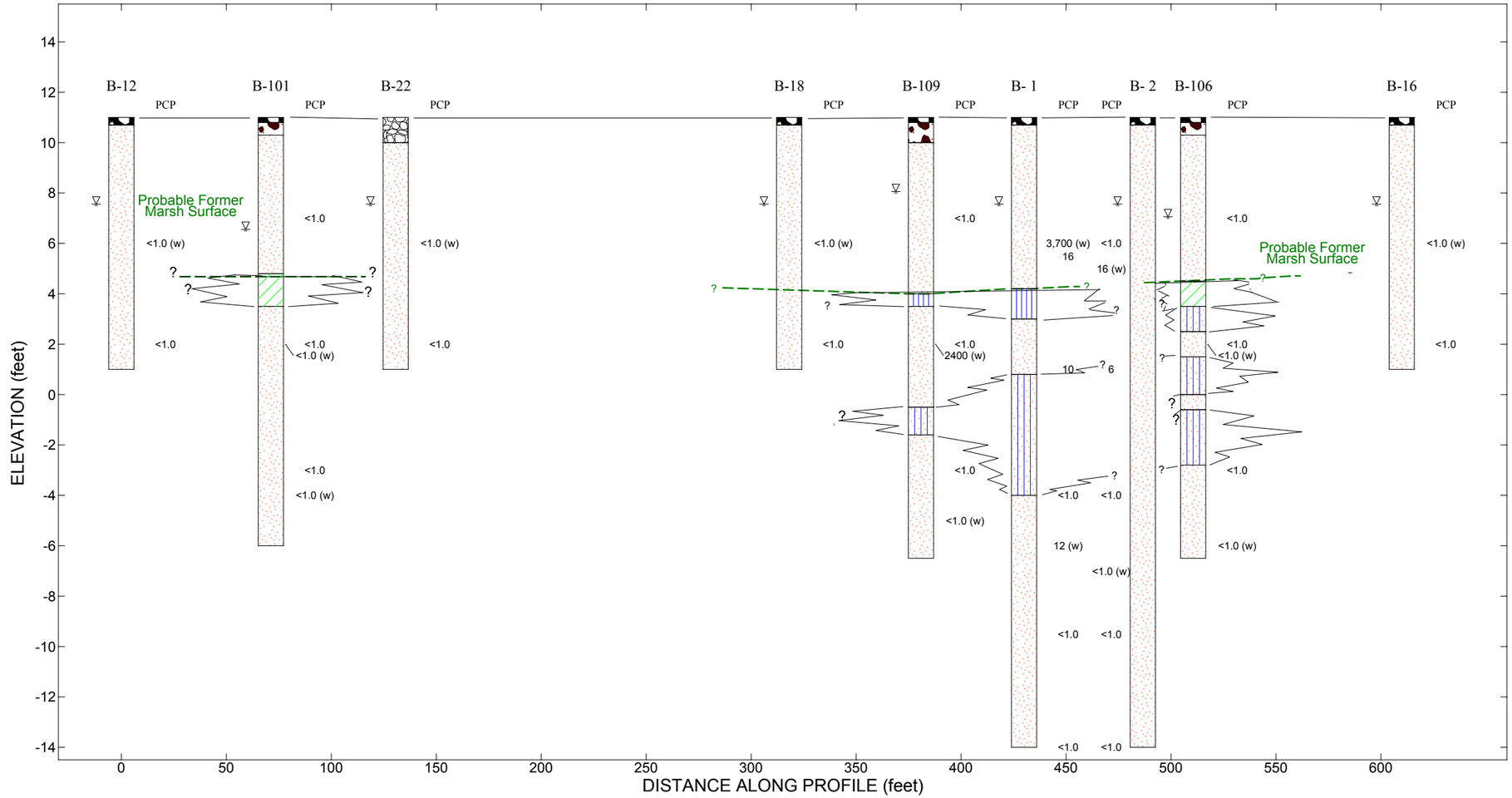
SCALE	JOB NO.	FIGURE NO.	REV.
1" = 70.0'	01203316.00	8d	1

◄ South

D

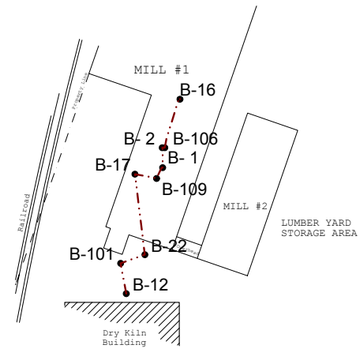
North ►

D'

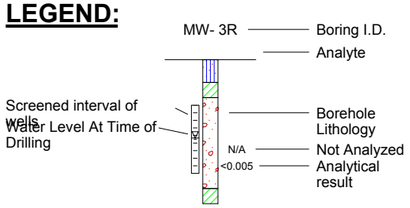


Explanation

- SAND (SP), Poorly-graded
- Asphalt
- SILTY SAND (SM)
- Concrete
- SILT (ML)
- SAND & GRAVEL - (base rock fill)
- CLAY (CL), Low Plasticity



LEGEND:



PCP	Concentration of Pentachlorophenol reported from laboratory analysis by EPA Method 8040.
(w)	Aqueous samples (initial drilling results)
<	Less-than numerical value of the detection limit.
mg/kg	Milligrams per kilogram (soil samples)
ug/L	Micrograms per Liter (aqueous samples)

Vertical Exaggeration: 12x

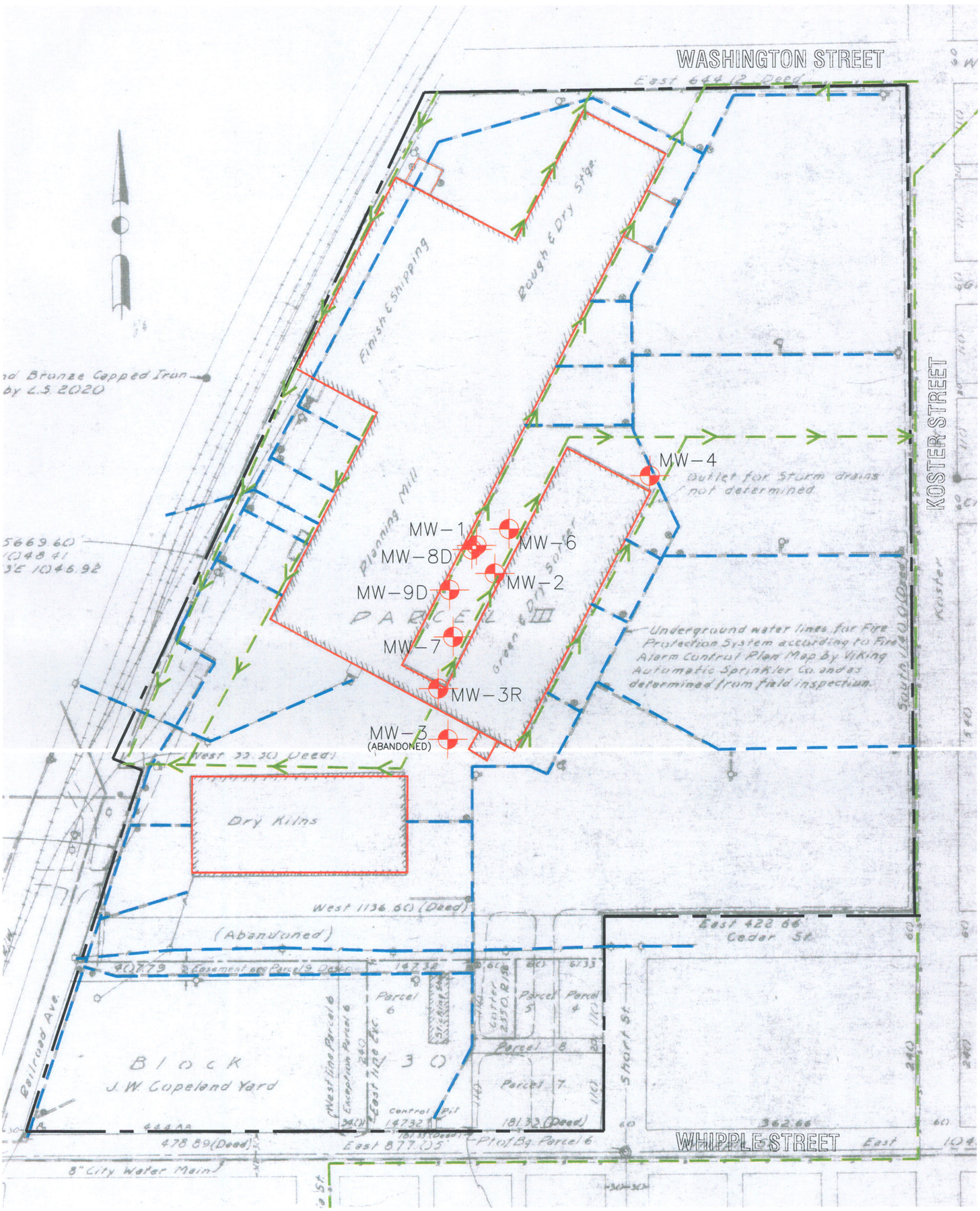
NO.	DATE	REVISIONS	DRN	CHK	DGS	ENG GS	CHF ENG	PROJ ENG
1	10-19-04	ISSUED FOR REVIEW	SK					

SCS ENGINEERS

Schmidbauer Lumber
1099 Waterfront Drive
Eureka, California

Geologic Section D - D'

SCALE	JOB NO.	FIGURE NO.	REV.
1" = 60.0'	01203316.00	8e	1



GRAPHIC SCALE

150 0 150 300

(IN FEET)

1" = 150 Ft.

LEGEND

- APPROXIMATE PROPERTY LINE
- FIRE PROTECTION WATER LINE
- STORM DRAIN LINE
- MONITORING WELL LOCATION

SCS ENGINEERS

ENVIRONMENTAL CONSULTANTS

3645 WESTWIND BOULEVARD
SANTA ROSA, CALIFORNIA
PH. (707) 546-9461 FAX. (707) 544-5769

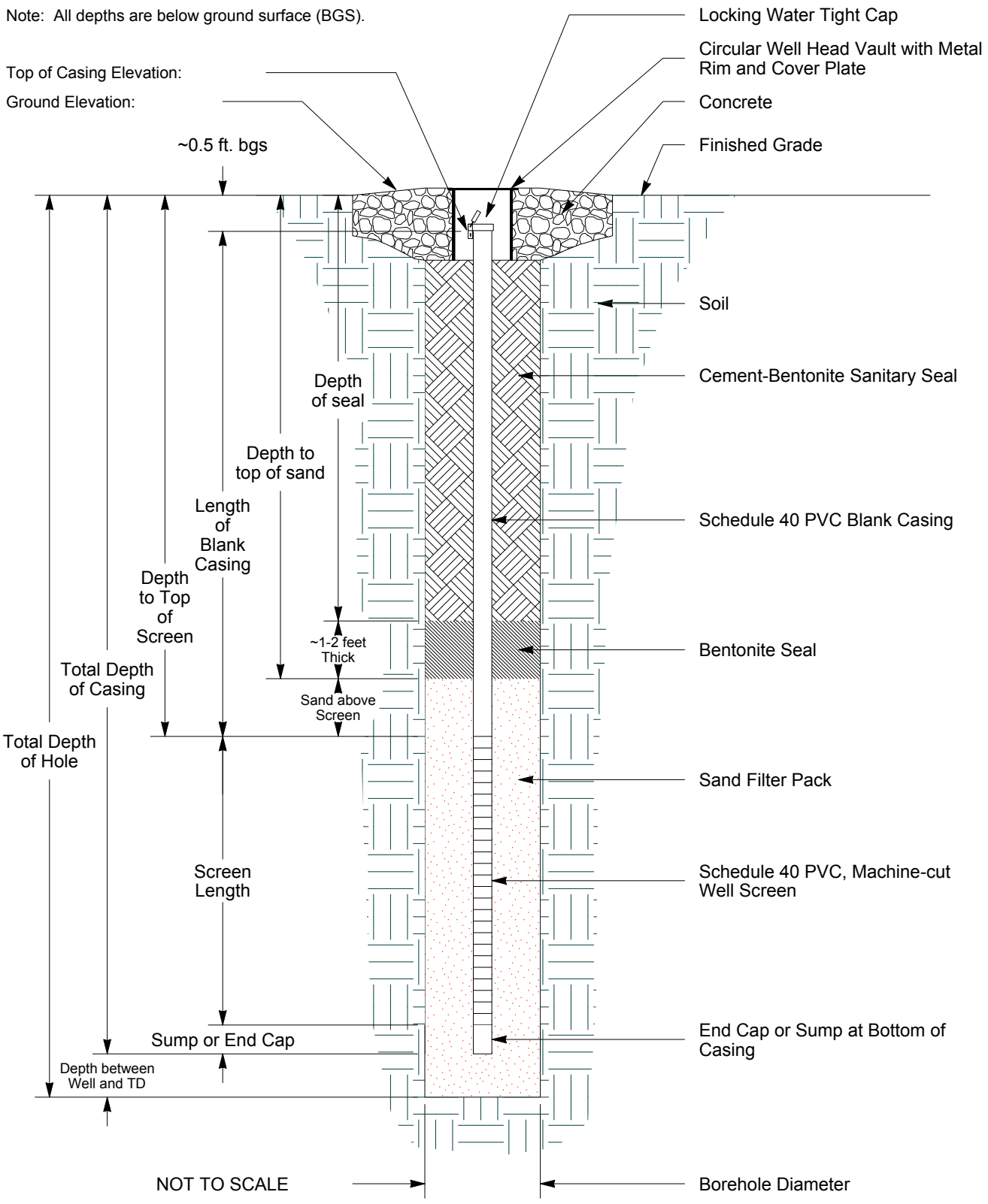
PROJ. NO. 1203316.00	DWN. BY: JJM	ACAD FILE: 3316.00_Site_Fire-Storm
DATE 7/27/05	CHK. BY: KWF	APP. BY: KWF

SHEET TITLE
SITE PLAN WITH STORM DRAINS AND WATERLINES

PROJECT TITLE
SCHMIDBAUER LUMBER COMPANY
1099 WATERFRONT DRIVE
EUREKA, CALIFORNIA

SCALE:
1" = 150' +/-

FIGURE NO.
9



SCS ENGINEERS

Environmental Consultants
3645 Westwind Boulevard
Santa Rosa, California 95403
Ph.: 707-546-9461 Fax: 707-544-5769

WELL COMPLETION DIAGRAM

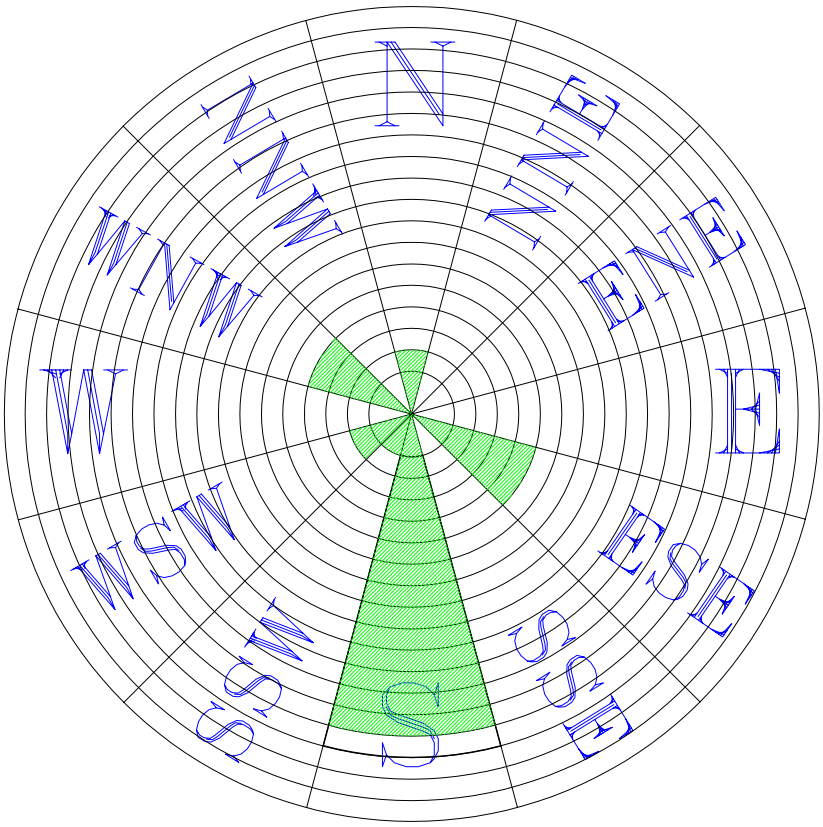
Schmidbauer Lumber
1099 Waterfront Drive
Eureka, California
Job Number: 01203316.00

FIGURE:
10

Charts

ALL SHALLOW WELLS

(MW-1, MW-3 (ABANDONED), MW-3R, MW-4,
MW-5, MW-6 & MW-7)

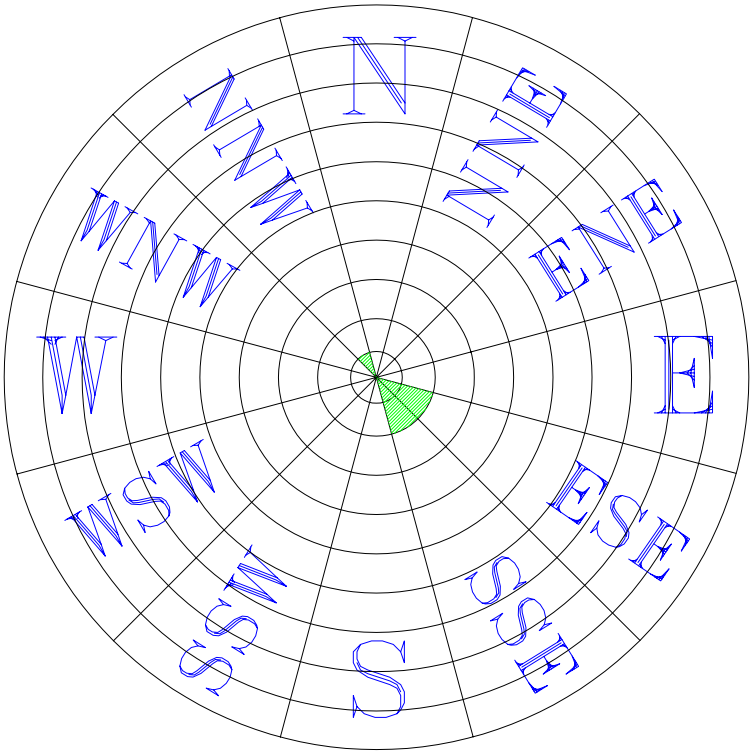


SCS ENGINEERS ENVIRONMENTAL CONSULTANTS 3645 WESTWIND BOULEVARD SANTA ROSA, CALIFORNIA 94503 PH. (707) 946-5461 FAX. (707) 544-5769	SHEET TITLE: WINDROSE DIAGRAM: GROUNDWATER FLOW DIRECTIONS 3/99 THROUGH 3/05 ALL SHALLOW MONITORING WELLS	SCALE: *(CHART-No Scale)*
PROJ. NO. 01203316.00 / DWN. BY: JJM / ACAD FILE: 1203316.00_Windrose DATE 7/27/05 / CHK. BY: KWF / APP. BY:	PROJECT TITLE: SCHMIDBAUER LUMBER COMPANY 1099 WATERFRONT DRIVE EUREKA, CALIFORNIA	CHART: 1

WINDROSE DIAGRAM

DEEP WELLS

(MW-2, MW-8D & MW-9D)



SCS ENGINEERS

ENVIRONMENTAL CONSULTANTS

3645 WESTWIND BOULEVARD
SANTA ROSA, CALIFORNIA 94503
PH. (707) 946-5461 FAX. (707) 544-5769

PROJ. NO.	DWN. BY:	ACAD FILE:
01203316.00	JJM	1203316.00_Windrose
DATE	CHK. BY:	APP. BY:
7/27/05	KWF	

SHEET TITLE:
WINDROSE DIAGRAM: GROUNDWATER FLOW DIRECTIONS 3/99 THROUGH 6/05
SHALLOW AND DEEP MONITORING WELLS

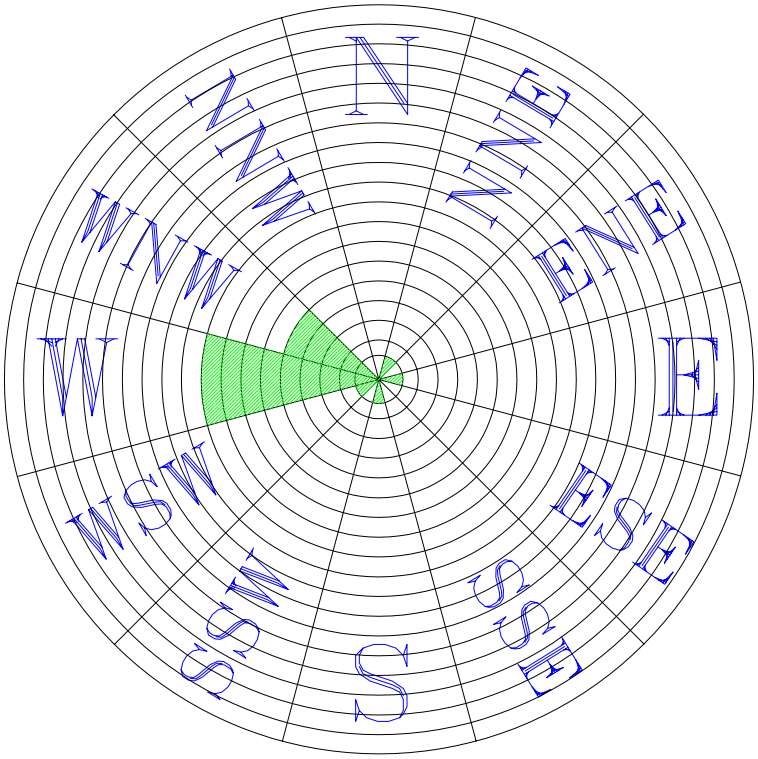
PROJECT TITLE:
SCHMIDBAUER LUMBER COMPANY
1099 WATERFRONT DRIVE
EUREKA, CALIFORNIA

SCALE:
(CHART-No Scale)

CHART:
2

WINDROSE DIAGRAM

SHALLOW WELLS: MW-1 , MW-6 AND MW-7



NOTES:

Beginning 5/01 through 3/05

6/05 event not plotted, well MW-6 inaccessable.

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3645 WESTWIND BOULEVARD
SANTA ROSA, CALIFORNIA 94503
PH. (707) 946-5461 FAX. (707) 544-5769

PROJ. NO.	DWN. BY:	ACAD FILE:
01203316.00	JJM	1203316.00_Windrose_6-05
DATE	CHK. BY:	APP. BY:
7/27/05	KWF	

SHEET TITLE:
WINDROSE DIAGRAM: GROUNDWATER FLOW DIRECTIONS 5/01 THROUGH 6/05
SHALLOW MONITORING WELLS

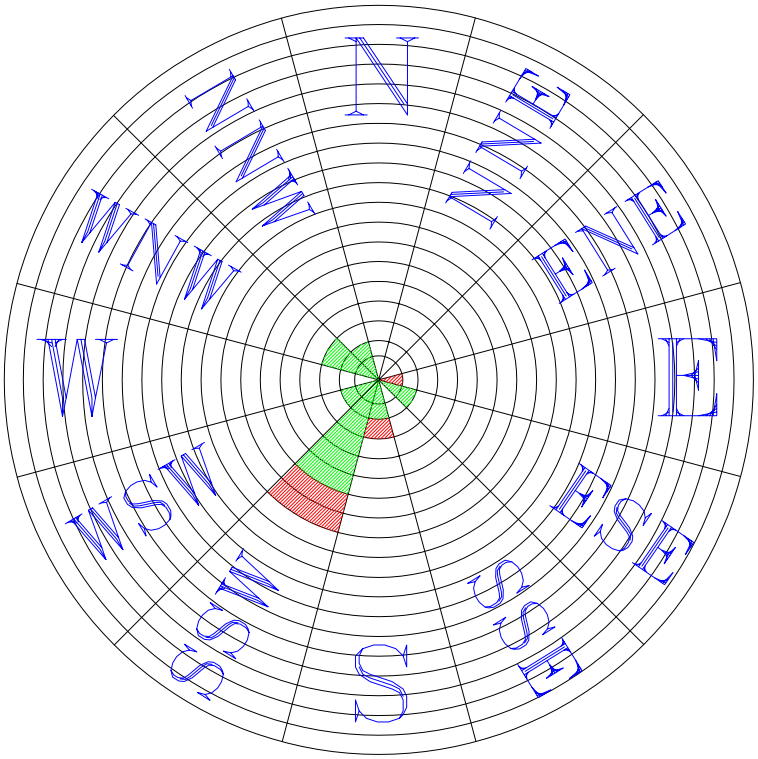
PROJECT TITLE:
SCHMIDBAUER LUMBER COMPANY
1099 WATERFRONT DRIVE
EUREKA, CALIFORNIA

SCALE:
(CHART-No Scale)

CHART:
3

WINDROSE DIAGRAM

SHALLOW WELLS: MW-3(1), MW-3R(1), MW-4 AND MW-5



NOTES:

(1) Well MW-3 abandoned and replaced with well MW-3R. Groundwater flows resolved with MW-3R are illustrated in red.

Beginning 3/99 through 3/05

6/00, 9/00, 8/02 events not plotted, well MW-3 inaccessable.

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3645 WESTWIND BOULEVARD
SANTA ROSA, CALIFORNIA 94503
PH. (707) 946-5461 FAX. (707) 544-5769

PROJ. NO.	DWN. BY:	ACAD FILE:
01203316.00	JJM	1203316.00_Windrose_6-05
DATE	CHK. BY:	APP. BY:
7/27/05	KWF	

SHEET TITLE: WINDROSE DIAGRAM: GROUNDWATER FLOW DIRECTIONS 3/99 THROUGH 6/05
SHALLOW MONITORING WELLS

PROJECT TITLE:
SCHMIDBAUER LUMBER COMPANY
1099 WATERFRONT DRIVE
EUREKA, CALIFORNIA

SCALE: *(CHART-No Scale)*

CHART: 4

Tables

Table 1: Groundwater Analytical Results - MW-1
1099 Waterfront Drive, Eureka, California

Well ID Number	Date	Top of Casing Elevation (ft>msl)	Depth to Groundwater (feet)	Water Level Elevation (feet > msl)	2,4,6-Trichlorophenol (µg/l)	2,3,5,6-Tetrachlorophenol (µg/l)	2,3,4,6-Tetrachlorophenol (µg/l)	2,3,4,5-Tetrachlorophenol (µg/l)	Pentachlorophenol (µg/l)
MW-1	03/27/99	11.17	2.66	8.51	**3**	**38**	**3,000**	<90	**5,500**
	06/21/99	11.17	3.05	8.12	<10	**95**	**6,100**	**130**	**8,000**
	09/27/99	11.17	3.59	7.58	**9.3**	<100	**9,900**	<100	**9,800**
	12/22/99	11.17	3.12	8.05	<10	**200**	**3,700**	<10	**5,500**
	03/16/00	11.17	2.81	8.36	<1.0	<1.0	**730**	<1.0	**2,500**
	06/09/00	11.17	3.18	7.99	**1**	<1.0	**900**	<1.0	**3,300**
	09/12/00	11.17	3.53	7.64	<1.0	**18**	**300**	**22**	**1,100**
	12/13/00	11.17	3.22	7.95	<1.0	<1.0	**470**	<1.0	**1,600**
	02/06/01	11.17	3.15	8.02	**15** [1]	**28** [2]		<1.0	**73**
	05/16/01	11.17	3.21	7.96	<1.0	<1.0	<1.0	<1.0	**55**
	08/21/01	11.17	3.66	7.51	<1.0	<1.0	**32**	**1.4**	**100**
	11/13/01	11.17	3.46	7.71	NR	**8.1** [2]		**1.3**	**16**
	02/12/02	11.17	2.92	8.25	<1.0	<1.0	<1.0	<1.0	<1.0
	05/14/02	11.17	3.04	8.13	<1.0	<1.0	<1.0	<1.0	**1.4**
	08/22/02	11.17	3.48	7.69	<1.0	<1.0	<1.0	<1.0	<1.0
	11/20/02	11.17	3.48	7.69	<1.0	<1.0	<1.0	<1.0	<1.0
	02/26/03	11.17	2.81	8.36	<1.0	<1.0	<1.0	<1.0	<1.0
	05/09/03	11.17	2.67	8.5	<1.0	<1.0	<1.0	<1.0	<1.0
	08/19/03	11.17	3.16	8.01	<1.0	<1.0	<1.0	<1.0	<1.0
	10/28/03	11.17	3.24	7.93	<1.0	<1.0	<1.0	<1.0	<1.0
	11/20/03	11.17	3.06	8.11	<1.0	<1.0	<1.0	<1.0	<1.0
	02/05/04	11.17	2.68	8.49	<1.0	<1.0	<1.0	<1.0	<1.0
	05/24/04	11.17	2.92	8.25	<1.0	<1.0	<1.0	<1.0	<1.0
	09/27/04	11.17	3.27	7.90	<1.0	<1.0	<1.0	<1.0	<1.0
	12/02/04	11.17	3.22	7.95	<1.0	<1.0	<1.0	<1.0	<1.0
	03/09/04	11.17	3.57	7.60	<1.0	<1.0	<1.0	<1.0	<1.0
	06/16/05	11.17	3.11	8.06	<1.0	<1.0	<1.0	<1.0	<1.0

Table 2: Groundwater Analytical Results - MW-2
1099 Waterfront Drive, Eureka, California

Well ID Number	Date	Top of Casing Elevation (ft>msl)	Depth to Groundwater (feet)	Water Level Elevation (feet > msl)	2,4,6-TCP (µg/l)	2,3,5,6-Tetrachlorophenol (µg/l)	2,3,4,6-Tetrachlorophenol (µg/l)	2,3,4,5-Tetrachlorophenol (µg/l)	Pentachlorophenol (µg/l)
MW-2	03/27/99	10.53	6.05	4.48	<0.1	**0.88**	**16**	<0.1	**35**
	06/21/99	10.53	6.64	3.89	<0.1	**0.97**	**24**	**0.66**	**62**
	09/27/99	10.53	7.61	2.92	<1.0	<1.0	<1.0	<1.0	<1.0
	12/22/99	10.53	5.89	4.64	<1.0	<1.0	**3.8**	<1.0	**16**
	03/16/00	10.53	6.05	4.48	<1.0	<1.0	<1.0	<1.0	<1.0
	06/08/00	10.53	7.49	3.04	<1.0	<1.0	<1.0	<1.0	<1.0
	09/12/00	10.53	Not sampled [7]						
	12/13/00	10.53	6.36	4.17	<1.0	<1.0	<1.0	<1.0	<1.0
	02/06/01	10.53	6.25	4.28	<1.0 [1]	<1.0 [2]		<1.0	<1.0
	05/16/01	10.53	6.60	3.93	<1.0	<1.0	<1.0	<1.0	<1.0
	8/21/01 [3]	10.53	7.52	3.01	<1.0	<1.0	<1.0	<1.0	<1.0
	11/13/01	10.53	6.01	4.52	NA	NA	NA	<1.0	<1.0
	02/12/02	10.53	6.12	4.41	NA	NA	NA	NA	NA
	05/14/02	10.53	7.53	3.00	<1.0	<1.0	<1.0	<1.0	<1.0
	08/22/02	10.53	Not sampled [7]						
	11/20/02	10.53	6.13	4.40	<1.0	<1.0	<1.0	<1.0	<1.0
	02/26/03	10.53	5.30	5.23	NA	NA	NA	NA	NA
	05/09/03	10.53	6.07	4.46	<1.0	<1.0	<1.0	<1.0	<1.0
	08/19/03	10.53	6.53	4.00	NA	NA	NA	NA	NA
	10/28/03	10.53	5.70	4.83	NA	NA	NA	NA	NA
	11/20/03	10.53	6.12	4.41	<1.0	<1.0	<1.0	<1.0	<1.0
	02/05/04	10.53	5.49	5.04	NA	NA	NA	NA	NA
	05/24/04	10.53	7.12	3.41	<1.0	<1.0	<1.0	<1.0	<1.0
	09/27/04	10.53	Not sampled [7]						
	12/02/04	10.53	5.94	4.59	<1.0	<1.0	<1.0	<1.0	<1.0
	03/09/05	10.53	6.20	4.33	<1.0	<1.0	<1.0	<1.0	<1.0
	6/16/2005	10.53	6.65	3.88	<1.0	<1.0	<1.0	<1.0	<1.0

Table 3: Groundwater Analytical Results - MW-3
1099 Waterfront Drive, Eureka, California

Well ID Number	Date	Water Level Elevation (feet > msl)	2,4,6-Trichlorophenol (µg/l)	2,3,5,6-Tetrachlorophenol (µg/l)	2,3,4,6-Tetrachlorophenol (µg/l)	2,3,4,5-Tetrachlorophenol (µg/l)	Pentachlorophenol (µg/l)
MW-3	03/27/99	7.82	<0.1	<0.1	<0.1	<0.1	<0.1
	06/21/99	3.50	<0.1	<0.1	<0.1	<0.1	**0.31**
	09/27/99	6.65	<1.0	<1.0	**16**	<1.0	**0.31**
	12/22/99	7.50	<1.0	<1.0	<1.0	<1.0	<1.0
	03/16/00	7.85	<1.0	<1.0	<1.0	<1.0	<1.0
	06/08/00	Not sampled [7]					
	09/12/00	Not sampled [7]					
	12/13/00	7.65	<1.0	<1.0	<1.0	<1.0	<1.0
	02/06/01	7.48	<1.0	<1.0 [2]		<1.0	<1.0
	5/16/01 [4]	7.43	NA	NA	NA	NA	NA
	08/21/01	6.88	<1.0	<1.0	<1.0	<1.0	<1.0
	11/13/01	7.01	NA	NA	NA	NA	NA
	02/12/02	7.55	NA	NA	NA	NA	NA
	05/14/02	7.38	NA	NA	NA	NA	NA
	08/22/02	Not sampled [7]					
	11/20/02	7.18	NA	NA	NA	NA	NA
	02/26/03	7.82	NA	NA	NA	NA	NA
	05/09/03	7.96	NA	NA	NA	NA	NA
	08/19/03	7.14	<1.0	<1.0	<1.0	<1.0	<1.0
	10/28/03	Well Abandoned September 2003 and replaced by MW-3R					

Table 3a: Groundwater Analytical Results - MW-3R
1099 Waterfront Drive, Eureka, California

Well ID Number	Date	Top of Casing Elevation (ft>msl)	Depth to Groundwater (feet)	Water Level Elevation (feet > msl)	2,4,6-Trichlorophenol (µg/l)	2,3,5,6-Tetrachlorophenol (µg/l)	2,3,4,6-Tetrachlorophenol (µg/l)	2,3,4,5-Tetrachlorophenol (µg/l)	Pentachlorophenol (µg/l)
MW-3R	10/28/03 [4]	10.49	3.22	7.27	<1.0	<1.0	<1.0	<1.0	<1.0
	11/20/03	10.49	2.83	7.66	NA	NA	NA	NA	NA
	02/05/04	10.49	2.24	8.25	NA	NA	NA	NA	NA
	05/24/04	10.49	2.46	8.03	NA	NA	NA	NA	NA
	09/27/04	10.49	2.84	7.65	<1.0	<1.0	<1.0	<1.0	<1.0
	12/02/04	10.49	2.69	7.80	NA	NA	NA	NA	NA
	03/09/05	10.49	2.50	7.99	NA	NA	NA	NA	NA
	06/16/05	10.49	2.50	7.99	<1.0	<1.0	<1.0	<1.0	<1.0

Table 4: Groundwater Analytical Results - MW-4
1099 Waterfront Drive, Eureka, California

Well ID Number	Date	Top of Casing Elevation (ft>msl)	Depth to Groundwater (feet)	Water Level Elevation (feet > msl)	2,4,6-Trichlorophenol (µg/l)	2,3,5,6-Tetrachlorophenol (µg/l)	2,3,4,6-Tetrachlorophenol (µg/l)	2,3,4,5-Tetrachlorophenol (µg/l)	Pentachlorophenol (µg/l)
MW-4	03/27/99	10.06	2.14	7.92	<0.1	<0.1	**0.12**	<0.1	**0.3**
	06/21/99	10.06	2.28	7.78	<0.1	**0.21**	**1.2**	<0.1	**3.0**
	09/27/99	10.06	2.53	7.53	<1.0	<1.0	<1.0	<1.0	<1.0
	12/22/99	10.06	2.29	7.77	<1.0	<1.0	<1.0	<1.0	<1.0
	03/16/00	10.06	2.01	8.05	<1.0	<1.0	<1.0	<1.0	<1.0
	06/09/00	10.06	2.28	7.78	<1.0	<1.0	<1.0	<1.0	<1.0
	09/12/00	10.06	2.45	7.61	<1.0	<1.0	<1.0	<1.0	**1.8**
	12/13/00	10.06	2.10	7.96	NA	NA	NA	NA	NA
	02/06/01	10.06	2.09	7.97	<1.0 [1]	<1.0 [2]		<1.0	<1.0
	5/16/01 [4]	10.06	2.70	7.36	NA	NA	NA	NA	NA
	08/21/01	10.06	2.51	7.55	<1.0	<1.0	<1.0	<1.0	<1.0
	11/13/01	10.06	2.09	7.97	NA	NA	NA	NA	NA
	02/12/02	10.06	1.87	8.19	NA	NA	NA	NA	NA
	05/14/02	10.06	2.15	7.91	NA	NA	NA	NA	NA
	08/22/02	10.06	2.00	8.06	<1.0	<1.0	<1.0	<1.0	<1.0
	11/20/02	10.06	2.36	7.70	NA	NA	NA	NA	NA
	02/26/03	10.06	1.99	8.07	NA	NA	NA	NA	NA
	05/09/03	10.06	1.86	8.20	NA	NA	NA	NA	NA
	08/19/03	10.06	2.15	7.91	<1.0	<1.0	<1.0	<1.0	<1.0
	10/28/03	10.06	2.00	8.06	NA	NA	NA	NA	NA
	11/20/03	10.06	1.92	8.14	NA	NA	NA	NA	NA
	02/05/04	10.06	1.91	8.15	NA	NA	NA	NA	NA
	05/24/04	10.06	2.03	8.03	NA	NA	NA	NA	NA
	09/27/04	10.06	2.27	7.79	<1.0	<1.0	<1.0	<1.0	<1.0
	12/02/04	10.06	2.27	7.79	NA	NA	NA	NA	NA
	03/09/05	10.06	2.13	7.93	NA	NA	NA	NA	NA
	6/16/2005	10.06	2.11	7.95	<1.0	<1.0	<1.0	<1.0	<1.0

Table 5: Groundwater Analytical Results - MW-5
1099 Waterfront Drive, Eureka, California

Well ID Number	Date	Top of Casing Elevation (ft>msl)	Depth to Groundwater (feet)	Water Level Elevation (feet > msl)	2,4,6-Trichlorophenol (µg/l)	2,3,5,6-Tetrachlorophenol (µg/l)	2,3,4,6-Tetrachlorophenol (µg/l)	2,3,4,5-Tetrachlorophenol (µg/l)	Pentachlorophenol (µg/l)
MW-5	03/27/99	10.03	1.43	8.60	<0.1	<0.1	<0.1	<0.1	**0.14**
	06/21/99	10.03	2.81	7.22	<0.1	<0.1	**0.38**	<0.1	**1**
	09/27/99	10.03	3.19	6.84	<1.0	<1.0	<1.0	<1.0	<1.0
	12/22/99	10.03	2.30	7.73	<1.0	<1.0	<1.0	<1.0	<1.0
	03/16/00	10.03	1.15	8.88	<1.0	<1.0	<1.0	<1.0	<1.0
	06/09/00	10.03	2.31	7.72	<1.0	<1.0	<1.0	<1.0	<1.0
	09/12/00	10.03	3.18	6.85	<1.0	<1.0	<1.0	<1.0	<1.0
	12/13/00	10.03	2.24	7.79	<1.0	<1.0	<1.0	<1.0	<1.0
	02/06/01	10.03	2.33	7.70	<1.0 [1]	<1.0 [2]		<1.0	<1.0
	05/16/01 [4]	10.03	2.33	7.70	NA	NA	NA	NA	NA
	08/21/01	10.03	3.24	6.79	<1.0	<1.0	<1.0	<1.0	<1.0
	11/13/01	10.03	1.90	8.13	NA	NA	NA	NA	NA
	02/12/02	10.03	2.14	7.89	NA	NA	NA	NA	NA
	05/14/02	10.03	2.65	7.38	NA	NA	NA	NA	NA
	08/22/02	10.03	3.10	6.93	<1.0	<1.0	<1.0	<1.0	<1.0
	11/20/02	10.03	2.74	7.29	NA	NA	NA	NA	NA
	02/26/03	10.03	2.09	7.94	NA	NA	NA	NA	NA
	05/09/03	10.03	1.77	8.26	NA	NA	NA	NA	NA
	08/19/03	10.03	2.66	7.37	<1.0	<1.0	<1.0	<1.0	<1.0
	10/28/03	10.03	2.54	7.49	NA	NA	NA	NA	NA
	11/20/03	10.03	1.92	8.11	NA	NA	NA	NA	NA
	02/05/04	10.03	1.65	8.38	NA	NA	NA	NA	NA
	05/24/04	10.03	2.43	7.60	NA	NA	NA	NA	NA
	09/27/04	10.03	2.74	7.29	<1.0	<1.0	<1.0	<1.0	<1.0
	12/02/04	10.03	2.38	7.65	NA	NA	NA	NA	NA
	03/09/05	10.03	2.35	7.68	NA	NA	NA	NA	NA
	06/16/05	10.03	2.50	7.53	<1.0	<1.0	<1.0	<1.0	<1.0

Table 6: Groundwater Analytical Results - MW-6
1099 Waterfront Drive, Eureka, California

Well ID Number	Date	Top of Casing Elevation (ft>msl)	Depth to Groundwater (feet)	Water Level Elevation (feet > msl)	2,4,6-Trichlorophenol (µg/l)	2,3,5,6-Tetrachlorophenol (µg/l)	2,3,4,6-Tetrachlorophenol (µg/l)	2,3,4,5-Tetrachlorophenol (µg/l)	Pentachlorophenol (µg/l)
MW-6	02/06/01	10.71	2.75	7.96	**4.5**	<1.0 [2]		<1.0	<1.0
	05/16/01	10.71	2.71	8.00	<1.0	<1.0	<1.0	<1.0	**6.1**
	08/21/01	10.71	3.24	7.47	<1.0	<1.0	<1.0	<1.0	<1.0
	11/13/01	10.71	2.87	7.84	NR	<1.0 [2]		<1.0	<1.0
	02/12/02	10.71	2.41	8.30	<1.0	<1.0	<1.0	<1.0	<1.0
	05/14/02	10.71	2.51	8.20	<1.0	<1.0	<1.0	<1.0	<1.0
	08/22/02	10.71	2.98	7.73	<1.0	<1.0	<1.0	<1.0	<1.0
	11/20/02	10.71	2.96	7.75	<1.0	<1.0	<1.0	<1.0	<1.0
	02/26/03	10.71	2.31	8.40	<1.0	<1.0	<1.0	<1.0	<1.0
	05/09/03	10.71	2.16	8.55	<1.0	<1.0	<1.0	<1.0	<1.0
	08/19/03	10.71	2.59	8.12	<1.0	<1.0	<1.0	<1.0	<1.0
	10/28/03	10.71	2.67	8.04	<1.0	<1.0	<1.0	<1.0	<1.0
	11/20/03	10.71	2.49	8.22	<1.0	<1.0	<1.0	<1.0	<1.0
	02/05/04	10.71	2.18	8.53	<1.0	<1.0	<1.0	<1.0	<1.0
	06/02/04 [6]	10.71	2.38	8.33	<1.0	<1.0	<1.0	<1.0	<1.0
	09/27/04	10.71	2.74	7.97	<1.0	<1.0	<1.0	<1.0	<1.0
	12/02/04	10.71	2.70	8.01	<1.0	<1.0	<1.0	<1.0	<1.0
	03/09/05	10.71	2.56	8.15	<1.0	<1.0	<1.0	<1.0	<1.0
	06/16/05	10.71	NM	NM	NA	NA	NA	NA	NA

Table 7: Groundwater Analytical Results - MW-7
1099 Waterfront Drive, Eureka, California

Well ID Number	Date	Top of Casing Elevation (ft>msl)	Depth to Groundwater (feet)	Water Level Elevation (feet > msl)	2,4,6-Trichlorophenol (µg/l)	2,3,5,6-Tetrachlorophenol (µg/l)	2,3,4,6-Tetrachlorophenol (µg/l)	2,3,4,5-Tetrachlorophenol (µg/l)	Pentachlorophenol (µg/l)
MW-7	02/06/01	10.76	2.79	7.97	<1.0	<1.0 [2]		<1.0	<1.0 [5]
	05/16/01	10.76	2.78	7.98	<1.0	<1.0		<1.0	<1.0
	08/21/01	10.76	3.19	7.57	<1.0	<1.0		<1.0	<1.0
	11/13/01	10.76	3.10	7.66	NR	<1.0 [2]		<1.0	<1.0
	02/12/02	10.76	2.52	8.24	<1.0	<1.0		<1.0	<1.0
	05/14/02	10.76	2.63	8.13	<1.0	<1.0		<1.0	<1.0
	08/22/02	10.76	3.06	7.7	<1.0	<1.0		<1.0	<1.0
	11/20/02	10.76	3.03	7.73	<1.0	<1.0		<1.0	<1.0
	02/26/03	10.76	2.37	8.39	<1.0	<1.0		<1.0	<1.0
	05/09/03	10.76	2.24	8.52	<1.0	<1.0		<1.0	<1.0
	08/19/03	10.76	2.79	7.97	<1.0	<1.0		<1.0	<1.0
	10/28/03	10.76	2.89	7.87	<1.0	<1.0		<1.0	<1.0
	11/20/03	10.76	2.69	8.07	<1.0	<1.0		<1.0	<1.0
	02/05/04	10.76	2.29	8.47	<1.0	<1.0		<1.0	<1.0
	06/02/04 [6]	10.76	2.50	8.26	<1.0	<1.0		<1.0	<1.0
	09/27/04	10.76	2.86	7.90	<1.0	<1.0		<1.0	<1.0
	12/02/04	10.76	2.79	7.97	<1.0	<1.0		<1.0	<1.0
	03/09/05	10.76	2.62	8.14	<1.0	<1.0		<1.0	<1.0
	6/16/2005	10.76	2.64	8.12	<1.0	<1.0		<1.0	<1.0

Table 8: Groundwater Analytical Results - MW-8D
1099 Waterfront Drive, Eureka, California

Well ID Number	Date	Top of Casing Elevation (ft>msl)	Depth to Groundwater (feet)	Water Level Elevation (feet > msl)	2,4,6-Trichlorophenol (µg/l)	2,3,5,6-Tetrachlorophenol (µg/l)	2,3,4,6-Tetrachlorophenol (µg/l)	2,3,4,5-Tetrachlorophenol (µg/l)	Pentachlorophenol (µg/l)
MW-8D	10/28/03	11.15	6.13	5.02	<1.0	**<1.5** [2]		<1.0	**6.6**
	11/20/03	11.15	6.57	4.58	<1.0	<1.0	<1.0	<1.0	<1.0
	02/05/04	11.15	5.96	5.19	<1.0	<1.0	<1.0	<1.0	<1.0
	05/24/04	11.15	7.63	3.52	<1.0	<1.0	<1.0	<1.0	<1.0
	09/27/04	11.15	6.88	4.27	<1.0	<1.0	<1.0	<1.0	<1.0
	12/02/04	11.15	6.42	4.73	<1.0	<1.0	<1.0	<1.0	<1.0
	03/09/05	11.15	6.72	4.43	<1.0	<1.0	<1.0	<1.0	<1.0
	06/16/05	11.15	7.25	3.90	<1.0	<1.0	<1.0	<1.0	<1.0

Table 9: Groundwater Analytical Results - MW-9D
1099 Waterfront Drive, Eureka, California

Well ID Number	Date	Top of Casing Elevation (ft>msl)	Depth to Groundwater (feet)	Water Level Elevation (feet > msl)	2,4,6-Trichlorophenol (µg/l)	2,3,5,6-Tetrachlorophenol (µg/l)	2,3,4,6-Tetrachlorophenol (µg/l)	2,3,4,5-Tetrachlorophenol (µg/l)	Pentachlorophenol (µg/l)
MW-9D	02/05/04	11.01	5.86	5.15	<1.0	<1.0	**1.9**	<1.0	**12**
	05/24/04	11.01	7.53	3.48	<1.0	<1.0	<1.0	<1.0	<1.0
	09/27/04	11.01	6.78	4.23	<1.0	<1.0	<1.0	<1.0	<1.0
	12/02/04	11.01	6.32	4.69	<1.0	<1.0	<1.0	<1.0	<1.0
	03/09/05	11.01	6.75	4.26	<1.0	<1.0	<1.0	<1.0	<1.0
	6/16/2005	11.01	7.09	3.92	<1.0	<1.0	<1.0	<1.0	<1.0

Table 10: Soil Analytical Results - Pentachlorophenol-1997
1099 Waterfront Drive, Eureka, CA

Boring Sample ID	Date	Pentachlorophenol (8040-Modified) (mg/kg)
B-1-5.5'	11/10/97	**16**
B-1-10'	11/10/97	**10**
B-1-15'	11/10/97	<1.0
B-1-20.5'	11/10/97	<1.0
B-1-25'	11/10/97	<1.0
B-1-30.5'	11/10/97	<1.0
B-2-5'	11/11/97	<1.0
B-2-10'	11/11/97	<1.0
B-2-15'	11/11/97	<1.0
B-2-20.5'	11/11/97	<1.0
B-2-25'	11/11/97	<1.0
B-3-5.5'	11/12/97	**4.8**
B-3-10'	11/12/97	<1.0
B-3-14'	11/12/97	**6**
B-4-4'	11/12/97	**2.7**
B-4-9'	11/12/97	**2.6**
B-4-14'	11/12/97	<1.0
B-5-4'	11/12/97	**5.7**
B-5-9'	11/12/97	**2.1**
B-6-4'	11/12/97	<1.0
B-6-9'	11/12/97	<1.0
B-10-9'	11/13/97	<1.0
B-11-9'	11/13/97	<1.0
B-12-9'	11/13/97	<1.0
B-13-9'	11/13/97	<1.0
B-14-9'	11/13/97	<1.0
B-15-9'	11/13/97	<1.0
B-16-9'	11/13/97	<1.0
B-17-9'	11/13/97	<1.0
B-18-9'	11/13/97	<1.0
B-19-9'	11/14/97	**1.6**
B-20-9'	11/14/97	<1.0
B-21-9'	11/14/97	<1.0
B-22-9'	11/14/97	<1.0

Table 11: Groundwater Analytical Results - Pentachlorophenol - 1997
1099 Waterfront Drive, Eureka, CA

Boring Sample ID	Date	Pentachlorophenol (8040-Modified) (µg/l)
B-1-5'-Water	11/10/97	**3,700**
B-1-17'-Water	11/10/97	**12**
B-1-27'-Water	11/11/97	**10**
B-2-6'-Water	11/11/97	**16**
B-2-18'-Water	11/11/97	<10
B-3-5'-Water	11/12/97	**5,800**
B-3-17'-Water	11/12/97	**94**
B-4-5'-Water	11/12/97	**3,700**
B-4-17'-Water	11/12/97	<10
B-5-5'-Water	11/12/97	**6,800**
B-6-6'-Water	11/12/97	**3,200**
B-7-5'-Water	11/12/97	**49**
B-8-5'-Water	11/12/97	<10
B-9-5'-Water	11/12/97	**13**
B-10-5'-Water	11/13/97	<10
B-11-5'-Water	11/13/97	<10
B-12-5'-Water	11/13/97	<10
B-13-5'-Water	11/13/97	<10
B-14-5'-Water	11/13/97	<10
B-15-5'-Water	11/13/97	<10
B-16-5'-Water	11/13/97	<10
B-17-5'-Water	11/13/97	<10
B-18-5'-Water	11/13/97	**190**
B-19-5'-Water	11/14/97	**19**
B-20-5'-Water	11/14/97	<10
B-21-5'-Water	11/14/97	<10
B-22-5'-Water	11/14/97	<10
Rinsate Comp.	11/14/97	<10
B-9A-5'-Water	11/14/97	<10

Table 12: 8040/8270 Groundwater Analytical Confirmation/Comparison
1099 Waterfront Drive, Eureka, CA

Boring Sample ID	Date	Pentachlorophenol 8040-Modified	Pentachlorophenol 8270
		(µg/l)	
B-3-5'-Water	11/12/97	**5,800**	**7,800**
B-3-17'-Water	11/12/97	**94**	**12**
B-7-5'-Water	11/12/97	**49**	**1.6**
B-15-5'-Water	11/13/97	<10	<10
B-16-5'-Water	11/13/97	<10	<10
B-17-5'-Water	11/13/97	<10	**8.4**
B-20-5'-Water	11/14/97	<10	<10
B-21-5'-Water	11/14/97	<10	<10
B-22-5'-Water	11/14/97	<10	<10
B-10A-5'-Water	11/14/97	<10	**2.1**
B-13A-5'-Water	11/14/97	<10	**1.1**
B-14A-5'-Water	11/14/97	<10	**1.2**

Table 13: Groundwater Analytical Results:
Dioxins and Furans - 3/20/2000
1099 Waterfront Drive, Eureka, CA

Analyte	MW-1	MW-2
	(pg/l)	
2,3,7,8-TCDD	ND	ND
1,2,3,7,8-PeCDD	ND	ND
1,2,3,4,7,8-HxCDD	ND	ND
1,2,3,6,7,8-HxCDD	ND	ND
1,2,3,7,8,9-HxCDD	ND	ND
1,2,3,4,6,7,8-HpCDD	ND	ND
OCDD	ND	ND
2,3,7,8-TCDF	ND	ND
1,2,3,7,8-PeCDF	ND	ND
2,3,4,7,8-PeCDF	ND	ND
1,2,3,4,7,8-HxCDF	ND	ND
1,2,3,6,7,8-HxCDF	ND	ND
2,3,4,6,7,8-HxCDF	ND	ND
1,2,3,7,8,9-HxCDF	ND	ND
1,2,3,4,6,7,8-HpCDF	ND	ND
1,2,3,4,7,8,9-HpCDF	ND	ND
OCDF	ND	ND

Table 14: Groundwater Analytical Results - Trihalomethanes - 2005
1099 Waterfront Drive, Eureka, California

Date	Well Identification Number	Chloroform (µg/l)	Dibromodichloromethane (µg/l)	Dibromochloromethane (µg/l)	Bromoform (µg/l)
6/16/2005	MW-1	<1.0	<1.0	<1.0	<1.0
	MW-2	<1.0	<1.0	<1.0	<1.0
	MW-3R	<1.0	<1.0	<1.0	<1.0
	MW-4	<1.0	<1.0	<1.0	<1.0
	MW-5	<1.0	<1.0	<1.0	<1.0
	MW-6	NM[7]	NM[7]	NM[7]	NM[7]
	MW-7	<1.0	<1.0	<1.0	<1.0
	MW-8D	<1.0	<1.0	<1.0	<1.0
	MW-9D	<1.0	<1.0	<1.0	<1.0

Table 15: Monitor Well Boring Analytical Results: Soil - 2001
1099 Waterfront Drive, Eureka, California

Well/Boring Sample ID	Date	2,4,6-Trichlorophenol	2,3,4,5-Tetrachlorophenol	2,3,4,6-Tetrachlorophenol	2,3,5,6-Tetrachlorophenol	Pentachlorophenol
		(mg/kg)				
MW-6-4'	01/23/01	<1.0	<1.0	<1.0	<1.0	<1.0
MW-7-4'	01/23/01	<1.0	<1.0	<1.0	<1.0	<1.0

Table 16: Soil Boring Analytical Results - 2003
1099 Waterfront Drive, Eureka, California

Well/Boring Sample ID	Date	2,3,(4/5),6-Tetrachlorophenol	2,3,4,5-Tetrachlorophenol	2,4,6-Trichlorophenol	Pentachlorophenol	Total Organic Carbon	pH
		(mg/kg)					Units
B-101-4'	09/15/03	<1.0	<1.0	<1.0	<1.0	3,060	8.2
B-101-9'	09/15/03	<1.0	<1.0	<1.0	<1.0	4,720	7.3
B-101-14'	09/15/03	<1.0	<1.0	<1.0	<1.0	1,410	8.3
B-102-4'	09/16/03	<1.0	<1.0	<1.0	<1.0	1,620	8.5
B-102-9'	09/16/03	<1.0	<1.0	<1.0	<1.0	7,790	7.9
B-102-14'	09/16/03	<1.0	<1.0	<1.0	<1.0	1,530	8.4
B-103-4'	09/16/03	<1.0	<1.0	<1.0	<1.0	1,120	8.4
B-103-9'	09/16/03	<1.0	<1.0	<1.0	<1.0	6,950	8.2
B-103-14'	09/16/03	<1.0	<1.0	<1.0	<1.0	1,180	8.3
B-104-6'	09/16/03	<1.0	<1.0	<1.0	<1.0	1,380	7.9
B-104-9'	09/16/03	<1.0	<1.0	<1.0	<1.0	2,660	8.3
B-104-13'	09/16/03	<1.0	<1.0	<1.0	<1.0	4,680	8.1
B-104-18'	09/16/03	<1.0	<1.0	<1.0	<1.0	1,370	8.4
B-105-4'	09/17/03	<1.0	<1.0	<1.0	<1.0	792	NA
B-105-9'	09/17/03	<1.0	<1.0	<1.0	<1.0	7,150	NA
B-105-14'	09/17/03	<1.0	<1.0	<1.0	<1.0	1,460	NA
B-106-4'	09/17/03	<1.0	<1.0	<1.0	<1.0	1,000	NA
B-106-9'	09/17/03	<1.0	<1.0	<1.0	<1.0	7,860	NA
B-107-1'	09/18/03	<1.0	<1.0	<1.0	<1.0	2,710	8.2
B-107-4'	09/18/03	<1.0	<1.0	<1.0	<1.0	923	8.2
B-107-7'	09/18/03	<1.0	<1.0	<1.0	<1.0	13,200	8.0
B-107-9'	09/18/03	<1.0	<1.0	<1.0	<1.0	7,730	8.0
B-108-1'	09/18/03	<1.0	<1.0	<1.0	<1.0	1,240	8.5
B-108-4'	09/18/03	<1.0	<1.0	<1.0	<1.0	960	8.3
B-108-6.5'	09/18/03	<1.0	<1.0	<1.0	<1.0	10,900	7.8
B-108-9'	09/18/03	<1.0	<1.0	<1.0	<1.0	1,930	8.7
B-108-14'	09/18/03	<1.0	<1.0	<1.0	<1.0	2,090	8.2

Table 16: Soil Boring Analytical Results - 2003
1099 Waterfront Drive, Eureka, California

Well/Boring Sample ID	Date	2,3,(4/5),6-Tetrachlorophenol	2,3,4,5-Tetrachlorophenol	2,4,6-Trichlorophenol	Pentachlorophenol	Total Organic Carbon	pH
		(mg/kg)					Units
B-109-4'	09/18/03	<1.0	<1.0	<1.0	<1.0	1,170	7.7
B-109-9'	09/18/03	<1.0	<1.0	<1.0	<1.0	2,850	8.4
B-109-14'	09/18/03	<1.0	<1.0	<1.0	<1.0	3,660	8.5

Table 17: Monitor Well Boring Analytical Results: Soil -2003
1099 Waterfront Drive, Eureka, California

Well/Boring Sample ID	Date	2,3,(4/5),6-Tetrachlorophenol	2,3,4,5-Tetrachlorophenol	2,4,6-Trichlorophenol	Pentachlorophenol	Total Organic Carbon	pH
		(mg/kg)					Units
MW-3R-4'	09/15/03	<1.0	<1.0	<1.0	<1.0	1,390	8.1
MW-3R-9'	09/15/03	<1.0	<1.0	<1.0	<1.0	2,320	8.3
MW-3R-14'	09/15/03	<1.0	<1.0	<1.0	<1.0	1,920	7.9
MW-8D-1.5'	09/15/03	<1.0	<1.0	<1.0	<1.0	907	8.7
MW-8D-4'	09/15/03	<1.0	<1.0	<1.0	<1.0	965	8.4
MW-8D-7'	09/15/03	**2.1**	<1.0	<1.0	**7.6**	9,530	7.4
MW-8D-9'	09/15/03	**1.3**	<1.0	<1.0	**5.3**	7,670	8.2
MW-8D-13.5'	09/15/03	<1.0	<1.0	<1.0	<1.0	4,690	8.1

Table 18: Boring Analytical Results– 2003: Groundwater
1099 Waterfront Drive, Eureka, California

Well/Boring Sample ID	Date	2,3,(4/5),6-Tetrachlorophenol	2,3,4,5-Tetrachlorophenol	2,4,6-Trichlorophenol	Pentachlorophenol	Total Organic Carbon
		(µg/l)				(mg/l)
B-101-Water-9'	09/15/03	<1.0	<1.0	<1.0	<1.0	83.2
B-101-Water-15'	09/15/03	<1.0	<1.0	<1.0	<1.0	15.9
B-102-Water-9'	09/16/03	<1.0	<1.0	<1.0	<1.0	10.4
B-102-Water-17'	09/16/03	<1.0	<1.0	<1.0	<1.0	19.3
B-103-Water-9'	09/16/03	<1.0	<1.0	<1.0	<1.0	7.62
B-103-Water-14'	09/16/03	<1.0	<1.0	<1.0	<1.0	26.5
B-104-Water-9'	09/16/03	<1.0	<1.0	<1.0	<1.0	5.50
B-104-Water-20'	09/16/03	<1.0	<1.0	<1.0	<1.0	33.1
B-105-Water-9'	09/17/03	<1.0	<1.0	<1.0	<1.0	8.52
B-105-Water-17'	09/17/03	<1.0	<1.0	<1.0	<1.0	30.3
B-106-Water-9'	09/17/03	<1.0	<1.0	<1.0	<1.0	7.26
B-106-Water-17'	09/17/03	<1.0	<1.0	<1.0	<1.0	10.8
B-107-Water-9' Pre-Purge	09/18/03	**19**	**2.4**	<1.0	**62**	3.06
B-107-Water-9' Post-Purge	09/18/03	**10**	**1.2**	<1.0	**28**	NA
B-107-Water Hydropunch	09/18/03	**1.6**	<1.0	<1.0	**1.3**	NA
B-108-Water-7' Pre-Purge	09/18/03	**9.5**	**7.5**	<1.0	**29**	9.20
B-108-Water-7' Post-Purge	09/18/03	**4.0**	<1.0	<1.0	**19**	NA
B-109-Water-9'	09/18/03	**860**	**44**	**4.4**	**2,400**	64.5
B-109-Water-16'	09/18/03	<1.0	**<1.0**	<1.0	<1.0	25.2

Table 19: Monitor Well Boring Analytical Results – 2003: Groundwater
1099 Waterfront Drive, Eureka, California

Well/Boring Sample ID	Date	2,3,(4/5),6-Tetrachlorophenol	2,3,4,5-Tetrachlorophenol	2,4,6-Trichlorophenol	Pentachlorophenol	Total Organic Carbon
		(µg/l)				(mg/l)
MW-3R-Water-9'	09/15/03	<1.0	<1.0	<1.0	<1.0	41.1
MW-3R-Water-15'	09/15/03	<1.0	<1.0	<1.0	<1.0	24.8
MW-8D-Water-9'	09/17/03	**350**	**42**	**3.0**	**1,000**	6.32
MW-8D-Water-16'	09/17/03	<1.0	<1.0	<1.0	<1.0	40.2

Table 20: Monitor Well Boring Analytical Results: Soil – 2004
1099 Waterfront Drive, Eureka, California

Well/Boring Sample ID	Date	2,3,(4/5),6-Tetrachlorophenol	2,3,4,5-Tetrachlorophenol	2,4,6-Trichlorophenol	Pentachlorophenol
		(mg/kg)			
MW-9D@4.0'	01/30/04	<1.0	<1.0	<1.0	<1.0
MW-9D@9.0'	01/30/04	<1.0	<1.0	<1.0	<1.0

Table 21: High Silt-Clay-Peat Zones
1099 Waterfront Drive, Eureka, California

Well/Boring ID Number	Total Depth (feet)	Interval (Feet)	Interval of Silt/Clay/Peat and Type (feet)
B-1	50	7-8	Silt (Bay Mud)
B-2	26	@10'	Wood
B-3	20	6-7'	Peat (Bay Mud?)
B-4	20	@10'	Wood
B-5	10	9'	Abundant plant and matter
B-6	10	7.5-10'	Peaty-abundant plant
B-7	5		None
B-8	5		None
B-9	5		None
B-10	10		None
B-11	10		None
B-12	10	8.5'	High plant matter
B-13	10	9'	Plant matter
B-14	10		None
B-15	10	5.5-10'	Sily sand, abundant plant matter
B-16	10		None
B-17	10	8.5'	Abundant plant matter
B-18	10		None
B-19	10	6.5-10'	Silty sand with plant matter
B-20	10	6-10'	Silty sand with plant matter
B-21	10		None
B-22	10		None
B-101	17	6.25-7.5'	Clay w/grass (Bay Mud/marsh deposit)
B-102	17.5	7.0-8.0'	Clay (Bay Mud ?)
B-103	17.5	6.25-6.75'	Peat (marsh deposit)
B-104	20.5	9.25-9.75'	Organic soil w/grass (Peat?)
B-105	18	7.0-7.75'	Silty clay w/grass (Bay Mud/marsh deposit)
B-106	17.5	6.5-7.5'	Peaty clay w/grass (marsh deposit)
B-107	9.5	6.75-8.0'	Clay w/grass (Bay Mud/marsh deposit)
B-108	15	7.75-8.25'	Clay w/grass (Bay Mud/marsh deposit)
B-109	17.5	7.0-7.5'	Clayey silt w/grass (Bay Mud/marsh deposit)
MW-1	10	8.5-10'	Clayey Sand (Bay Mud)
MW-2	20	11-15'	Sandy Clay (Bay Mud)
MW-3	10	7-10'	Sandy-Silty Clay (Bay Mud)
MW-3R	17.5	5.5-6.5'	Silty Clay w/grass (Bay Mud/marsh deposit)
MW-4	10		None
MW-5	10		None
MW-6	10		None
MW-7	10		None
MW-8D	20	5.5-6.5'	Silty clay w/grass (Bay Mud/marsh deposit)
MW-9D	20.5		7.75-8.25' clay w/grass (Bay Mud/marsh deposit)

Footnotes

1 - Analytical method yields total trichlorophenols as conducted by Analytical Sciences
2 - Co-elution
3 - Well converted to semi-annual sampling program per 3/25/01 NCRWQCB letter
4 - Well converted to annual sampling program per 3/15/01 NCRWQCB letter
5 - Laboratory reports presence of pentachlorophenol below normal laboratory reporting limits
6 - Wells inaccessible 5/27/04. Depth to water measured 6/2/04
7 - Well inaccessible.
NA - Not Analyzed
NR - Not Reported
NM - Not Measured

Appendix A: SCS Standard Soil and Water Sampling Procedures and QA/QC Protocols

STANDARD
SOIL AND WATER SAMPLING PROCEDURES
AND QA/QC PROTOCOL

December 15, 2003

SCS ENGINEERS
ENVIRONMENTAL CONSULTANTS
STANDARD SOIL SAMPLING PROCEDURES

The following outline describes the standard equipment and procedures used by SCS Engineers (SCS) personnel for the collection of soil samples for laboratory analysis.

Equipment

Modified California split-spoon drive sampler, standard penetration sampler, or direct push core barrel (Drill rig sampling)
Drive sampler (hand auger samples)
Typical 1.5-inch to 2.0-inch diameter by 6.0 inch long brass or stainless steel liners and plastic end-caps. Teflon sheets or aluminum foil will also be used for samples suspected of containing volatile compounds (gasoline, aromatic hydrocarbons, solvents, etc.)
Appropriate sample holders will be used for samples suspected of containing volatile compounds (gasoline, aromatic hydrocarbons, solvents, etc.) when EPA Method 5035 sampling is required by the regulatory agency. Standard sample containers will be used when field preservation occurs for EPA Method 5035 compliance.
Typical 1.5-inch to 2.5-inch diameter by 6.0 inch long plastic or metal liners for direct push core barrel.
PID organic vapor analyzer (OVA) or equivalent Field Detector

Sampler and Sample Container Cleaning Equipment:

- Stiff-bristle brushes
- Buckets
- Detergent (Non-phosphate detergent recommended)
- Deionized/potable water

Insulated sample storage and shipping containers (ice chests) and blue ice
Insulated sample storage and shipping containers (ice chests) and dry ice for EPA Method 5035 sample holders which cannot be delivered to the laboratory within 48 hours for preservation
Personal protective equipment (generally level D protection).

General Sampling Procedures

Soil samples are collected in accordance with regulatory guidance. Soil sampling procedures are updated as new guidance is provided by regulatory agencies. Sampling equipment (i.e., sample liners, auger bits, sampling devices) are pre-washed as necessary with a brush in a detergent solution, followed by double rinsing with distilled or deionized water prior to each sampling event. All new sample liners will have been pre-washed prior to use. All samples are collected in such a manner as to minimize the volatilization or oxidation due to agitation and/or mixing upon handling.

Soil samples collected by hand augering for lithologic logging, and for chemical and physical analyses are typically obtained by pounding the sample tube into the soil being tested. If an auger hole is drilled with a motorized drill rig, samples are typically collected using a drive sampler, which is driven approximately 18 to 24 inches below the depth of the auger bit. The sampling methodology may be adjusted on a case-by-case basis, depending on the suspected contaminant(s). Where required, EPA Method 5035 sample holders will be filled as rapidly as possible to prevent volatilization from either a sample sleeve or directly from the formation where feasible.

Soil samples collected from a backhoe bucket or from an accessible pit or excavation (ramped or shored) are collected by removing excess material to expose as fresh as possible soil. The sample liner is then pushed into the soil until the liner is full. Where required, EPA Method 5035 sample holders will be filled as rapidly as possible to prevent volatilization directly from the formation or from the backhoe bucket after a small amount of material is removed to expose a fresh surface where feasible.

Standard metal liners will be submitted for analysis in those circumstances where EPA Method 5035 sample holders are deemed to be unusable (gravel or extremely dense material). EPA Method 5035 preservation times will still be required of the laboratory.

When utilizing the split spoon sampler with a drill rig, the portions of the soil sample recovered in additional liners are also examined and noted for any contamination and/or changes in lithology.

The soils, when required, are classified in accordance with the Unified Soil Classification System (USCS). Sample liner ends selected for analysis are typically covered with teflon sheets and sealed with plastic end caps, stored in a cooler (4° C), and transported to a California Department of Health Services Certified Analytical Laboratory for the requested analyses (except where there is no State certification for the analysis being conducted). If storage is required prior to delivery to the laboratory or laboratory courier, the samples are stored in a secure refrigerator prior to delivery. EPA Method 5035 sample holders used to comply with EPA Method 5035 sample collection procedures will be collected and stored in a cooler (4° C), and transported to a California Department of Health Services Certified Analytical Laboratory for preservation within 48 hours of sample collection. In the event the samples cannot be delivered to the Laboratory to meet the 48 hour preservation requirement, the samples will be placed in an ice chest with dry ice and kept frozen either in the ice chest with adequate dry ice or in a secure freezer until they can be delivered to the Laboratory for proper preservation. The Laboratory may receive the samples at the job site for field preservation, in which case standard sample tubes will be used.

All sample containers are labeled in the field. The sample labels will typically contain the following information:

Sample identification number (including depth and stratigraphic position where applicable)
Project name
Project address
Sampler initials
Date of collection
Other pertinent information

Chain-of-Custody documents are completed in the field and accompany the samples to the laboratory. The Chain-of-Custody document will typically contain the following information:

Sample identification number (including depth and stratigraphic position where applicable)
Project name
Project address
Project number
Sampler (printed and signed)
Date and time of collection (for each sample)
Matrix type (soil, water, etc.)
Analyses and turn-around-time requested
Billing Information
Other pertinent information

Stockpile Sampling

Discrete samples from thin stockpiles are collected in brass or stainless steel liners, by removing 6 inches to 1 foot of soil and driving the brass or stainless steel liner into the stockpile. Soil samples are collected from thick stockpiles containing volatile contaminants by either augering or otherwise excavating approximately one third to one half way into the pile and then driving the sample liner into the soil in the hole, or collecting a sample from the backhoe bucket. Surface or near surface samples will be collected from homogenized stockpiles containing non-volatile contaminants such as metals, motor oil, or oil and grease.

For final verification characterization, discrete soil samples will be collected at intervals required by regulation, or by the lead regulator for the disposal or treatment option selected. EPA Method 5035 sampling procedures, as indicated above, will be followed for discrete and/or verification sampling when directed by the regulatory agency and/or the receiving facility. EPA Method 5035 sampling procedures, as described above, will not be followed for composite sampling for disposal unless directed by the landfill(s) in order to profile the soil for disposal.

STANDARD GROUNDWATER SAMPLING PROCEDURES

The following outline describes the standard equipment and procedures which are used by SCS personnel for the collection of groundwater samples for laboratory analysis.

Monitoring Well Development

After monitoring wells are installed and prior to initial sampling of the wells, well development is conducted. Well development is conducted to create an effective filter pack around the well screen, to optimize hydraulic communication between the formation and the well screen, and to assist in restoring the natural water quality near the well. Well development is also conducted to remove fines and to remove any foreign materials introduced during drilling.

Well development will be conducted as follows:

1. Record the static water level and total well depth.

2. Set the pump and record the pumping rate. Pump until the turbidity reaches the desired level, typically measured using a turbidity meter.

3. Discontinue pumping and begin surging using a properly designed surge block and proper surging technique.

4. Measure and record well depth to determine the amount of fines and repeat Step 2.

5. Repeat surging and pumping until the well yields water of acceptable turbidity at the beginning of a pumping cycle.

Depending on the depth of the water, the hydraulic conductivity of the aquifer, and the diameter of the well, pumping may effectively achieve well development. Wells completed in very silty geologic units also may produce consistently turbid samples. Wells of this type will normally be considered to have been properly installed and developed and turbid water samples will be considered representative of mobile constituents in the aquifer.

Monitoring Well Sampling

Groundwater sampling and evaluation of monitoring wells begins by removal of the well caps and measuring water levels in all monitoring wells at a site with a water level indicator. The fluid in the well is then monitored for the presence of free floating material. If free product is present in the well, its thickness is measured using an oil-water interface probe. A program of free product removal may be initiated. A groundwater sample is typically not collected from any well with confirmed free floating product unless a directive to do so is received from the regulatory agency.

All monitoring wells are typically checked for free product until authorization has been received from the lead regulatory agency that checking for free product is no longer necessary. Water levels will continue to be checked until field measurements indicate that equilibrium has been achieved from which to compute the groundwater flow direction and gradient.

If free product is not present in the well being monitored, the well is purged, with groundwater parameters such as pH, conductivity, and temperature measured after each well volume removed. This process continues until parameters being measured such as pH, conductivity, and temperature, have generally stabilized (reproducible within 10%). As a general practice, a minimum of 3 well casing volumes or until the well goes dry constitutes adequate purging. For 2-inch diameter wells, a minimum of 5 gallons of water should be removed unless the well goes dry. Wells will be purged from least to most contaminated after the initial round of sampling. The purge pump will be placed near the top of the measured water table to assure that fresh water from the formation will move upward in the screen. Water will be purged from the well at a rate that does not cause recharge water to be excessively agitated. The purge pump will be lowered into the well as necessary to achieve the desired removal of groundwater.

Once a well has been adequately purged, a groundwater sample is collected using a disposable or pre-cleaned bailer. The groundwater sample is collected from the well in containers appropriate to the analyses being conducted. As examples, 1 liter amber bottles are used for diesel/motor oil/kerosene and oil and grease analyses, 40 milliliter volatile organic analysis vials are used for gasoline BTEX, 8010, 8240, and 8260 analyses, and plastic containers are used for total and/or dissolved metals. Volatile organic analysis vials will be immediately capped after collection and placed on ice to minimize loss of volatiles. All other groundwater sample containers collected will be capped and placed in a storage container in a timely manner and as appropriate for the analysis being conducted. Proper containers, sampling collection procedures, and storage requirements will be verified with the analytical laboratory prior to sample collection. Monitoring wells at a site are purged prior to collection of samples, unless the regulatory agency has approved non-purge samples.

After the wells have been adequately purged, they will be allowed to recover to 80% of their original volume prior to sampling. Any well purged to dryness will be sampled after a sufficient volume of groundwater has entered the well to enable the collection of the necessary groundwater samples. All collected groundwater samples are stored in an ice chest on blue ice and transported under Chain-of-Custody documentation. The samples are either transported directly to the analytical laboratory on the day of collection, delivered to the laboratory courier on the day of collection, or are returned to SCS's office where they are stored in a secure refrigerator and then delivered to a California Department of Health Services Certified Analytical Laboratory or a laboratory courier for the requested analyses (except where there is no State certification for the analysis being conducted). Every effort will be made to assure that sample storage will not exceed 72 hours before delivery of the samples to either the laboratory or the laboratory courier. Samples being analyzed for constituents with a longer holding time, such as metals, may be stored for a longer period of time, provided the holding time is not exceeded, before delivery to the laboratory.

Where more than one site is sampled on the same day by the sampler, samples from each site will be stored in separate ice chests. If feasible, samples suspected of being highly impacted will be stored separately from samples which are presumed to be clean. To the extent feasible, samples will be separated based on site and suspected degree of impact while awaiting delivery to or pick up by the analytical laboratory.

All purged fluid is stored on-site in DOT 55-gallon drums pending analysis. The drums and the fluid in the drums are the exclusive property and responsibility of the responsible party. SCS typically samples the drums and arranges for disposal at the appropriate time.

Grab Water Samples

Grab water samples may be collected from the pits, borings, discrete sampler borings, creeks, ponds, and any other bodies or vessels containing water. If the water sample can be safely collected by hand, it will be, otherwise, a disposable bailer will typically be used to collect the sample.

All collected grab water samples will be stored on ice and transported under Chain-of-Custody documentation. The samples will either be delivered directly to the analytical laboratory or to the analytical laboratory courier on the day of the collection, or they will be returned to SCS' office where they will stored in a secure refrigerator a maximum of 72 hours, and then delivered to a California Department of Health Services Certified Analytical Laboratory for the requested analyses (except where there is no State certification for the analysis being conducted) or the laboratory courier. Again, samples being analyzed for constituents with a longer holding time, such as metals, may be stored for a longer period of time before delivery to the laboratory.

Typically, no purge water will be generated during grab water sampling. Should purging occur, the purge water will be stored on-site in either a DOT 55-gallon drum, or other appropriate vessel, pending analysis. Industry standards are that drums and all produced water are the exclusive property and responsibility of the responsible party. SCS will typically sample such containers and arrange for disposal at the appropriate time.

Sample Handling-QA/QC Elements

Sample Handling

The elapsed time between sample collection and delivery to the laboratory or the laboratory courier will typically not exceed 72 hours. Again, samples being analyzed for constituents with a longer holding time, such as metals, may be stored for a longer period of time before delivery to the laboratory, providing the holding time is not exceeded.

Sealed sample containers will only be opened by laboratory personnel during the specified sample extraction process.

Chain-of-Custody

In order to document and trace sample possession from time of collection, a Chain-of-Custody record will be filled out on the Chain-of-Custody document by the sampler for each sample collected. The Chain-of-Custody document will accompany the sample(s) through laboratory analysis. The completed Chain-of-Custody record for each sample will be included in the analytical report from the laboratory.

Blanks

Blanks will be used or collected as part of the sampling program at the discretion of the project manager and/or the lead regulatory agency. Trip and/or field blanks will be supplied and analyzed along with the samples, at the discretion of the project manager and/or the lead regulatory agency.

Modifications

Any modification to the standard sampling procedures and QA/QC protocol outlined in this document for either soil or water samples will be noted and fully explained in the sampling report.

PERSONAL PROTECTION

Sampling at environmental sites increases the chance of exposure of the sampling technician to chemicals which pose a threat to the environment and may pose a threat to the sampler's short-term and/or long-term health at the concentrations present. Each site will be evaluated prior to conducting any field work to ascertain the chemicals detected in the past, the chemicals likely to be detected in the future, and the likely concentrations of those chemicals to be detected. The chemicals will be evaluated for possible routes of exposure at the concentrations likely to be encountered. Appropriate personal protective equipment to prevent contact with contaminants shall be used. Appropriate chemical-specific gloves shall be worn and changed between sampling events.

In the event the sampler observes or detects activities occurring on or around the site which could cross contaminate collected samples, the sampler will suspend sampling until the activities which may lead to cross contamination cease. If necessary, the sampler will abort the sampling event. Any aborted sampling event will be rescheduled after the suspicious activities are indicated to have ceased, or the activities can be halted during the sampling event. Any suspension or aborting of sampling will be immediately reported to the appropriate registered professional.

Site-specific protection measures are outlined in the Site Health and Safety Plan, where active investigation and/or remediation is occurring.

Active Investigation and/or Remediation

(Refer to Site Specific Health and Safety Plan)

Required personal protective equipment:

Hardhats
Steel toed boots

Recommended personnel protective equipment:

Eye protection
Hearing protection
Gloves to protect against dermal contact with contaminants
Skin protection from sunlight
Photoionization detector/Gas Tech
Respirator (NIOSH approved with appropriate filters for contaminants detected or expected)
Detergent wash and rinse water
First aid kit
Fire extinguisher
Route map to and phone number of nearest hospital

As indicated above, each site must be evaluated on a case-by-case basis to determine the appropriate personal protection materials to use and personal protection activities to implement in the field. As an example, several sun tan lotions contain chemicals which are detected in the diesel range. Care must be taken to prevent cross contamination by sun tan lotion at diesel impacted sites.

Passive Investigation

Recommended personnel protective equipment:

Skin protection
Eye protection
Gloves to protect against dermal contact with contaminants
Detergent wash and rinse water
First aid kit
Fire extinguisher
Route map to and phone number of nearest hospital

As indicated above, each site must be evaluated on a case-by-case basis to determine the appropriate personal protection materials to use and personal protection activities to implement in the field. If a site is known to be heavily impacted, wells should be sampled from the cleanest to most impacted to minimize the potential for cross contamination. The potential for cross contamination can be further minimized by wearing disposable gloves and disposing of gloves after each sample is collected. As an alternative, hands can be washed and rinsed between each sampling event. Where contaminants are non-volatile and do not migrate readily, such as metals, personal protection can be modified to match the primary routes of exposure, which are inhalation and ingestion. In this case it may be appropriate to wear a dust mask if excessive dust is created during sampling. Washing of hands and face before eating or drinking is highly recommended. Protection of clothing by wearing Tyveks is also to be considered, along with washing clothing after each use in conditions where significant dust is created.

Personal protection is designed to prevent or minimize the exposure to the sampler of chemicals or substances which may adversely impact either the short-term or long-term health of the sampler. It is the sampler's responsibility to adequately protect themselves from exposure. All samplers are encouraged to protect themselves and their health to the extent feasible while in the field. All materials necessary to provide adequate protection are available and should be utilized as appropriate.

Cross contamination is to be minimized at all times while sampling. In some instances, proper use and implementation of personal protection will also aid in minimizing cross contamination. The sampler is very highly encouraged to implement proper personal protection, especially where it further minimizes the risk of cross contamination of samples.